Department of Defense
Fiscal Year (FY) 2020 Budget Estimates

March 2019

Navy

Justification Book Volume 1 of 1

Weapons Procurement, Navy

The estimated cost of this report for the Department of the Navy (DON) is $41,738.

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

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Weapons Procurement, Navy

For construction, procurement, production, modification, and modernization of missiles, torpedoes, other weapons, and related support equipment including spare parts, and accessories therefore; 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, $4,332,710,000 to remain available for obligation until September 30, 2022.

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

- OCO for Direct War Costs ($64,940,000): 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 ($32,526,000): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO.
- OCO for Base Requirements ($4,235,244,000): OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

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

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Weapons Procurement, Navy	3,621,908	3,711,576	14,134	3,725,710
Total Department of the Navy	3,621,908	3,711,576	14,134	3,725,710

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

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO
Weapons Procurement, Navy		4,235,244	97,466	4,332,710
Total Department of the Navy		4,235,244	97,466	4,332,710

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

Appropriation	FY 2020 Total (Base + OCO)
Weapons Procurement, Navy	4,332,710
Total Department of the Navy	4,332,710

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

Appropriation: Weapons Procurement, Navy

Budget Activity	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
01. Ballistic Missiles	1,138,996	1,063,748		1,063,748
02. Other Missiles	1,798,477	1,946,634	9,594	1,956,228
03. Torpedoes and Related Equipment	312,969	341,850		341,850
04. Other Weapons	269,179	223,656	4,540	228,196
06. Spares and Repair Parts	102,287	135,688		135,688
Total Weapons Procurement, Navy	3,621,908	3,711,576	14,134	3,725,710

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

Appropriation: Weapons Procurement, Navy

Budget Activity	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO
01. Ballistic Missiles		1,184,393		1,184,393
02. Other Missiles		2,347,168	97,466	2,444,634
03. Torpedoes and Related Equipment		385,521		385,521
04. Other Weapons		192,024		192,024
06. Spares and Repair Parts		126,138		126,138
Total Weapons Procurement, Navy		4,235,244	97,466	4,332,710

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

Appropriation: Weapons Procurement, Navy

Budget Activity	FY 2020 Total (Base + OCO)
01. Ballistic Missiles	1,184,393
02. Other Missiles	2,444,634
03. Torpedoes and Related Equipment	385,521
04. Other Weapons	192,024
06. Spares and Repair Parts	126,138
Total Weapons Procurement, Navy	4,332,710

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
	Budget Activity 01: Ballistic Missiles										
	Modification of Missiles										
1	Trident II Mods			1,131,910		1,056,750				1,056,750	U
	Support Equipment & Facilities										
2	Missile Industrial Facilities	A		7,086		6,998				6,998	U
	Total Ballistic Missiles			1,138,996		1,063,748				1,063,748	
	Budget Activity 02: Other Missiles										
	Strategic Missiles										
3	Tomahawk	A	100	303,011		98,570				98,570	U
	Tactical Missiles										
4	AMRAAM	A	120	185,285	140	187,258	1	1,183	141	188,441	U
5	Sidewinder	A	185	76,915	310	121,100	1	381	311	121,481	U
6	JSOW	B		5,487		1,330				1,330	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
Budget Activity 01: Ballistic Missiles											
	Modification of Missiles										
1	Trident II Mods					1,177,251				1,177,251	U
	Support Equipment & Facilities										
2	Missile Industrial Facilities	A				7,142				7,142	U
Total Ballistic Missiles						1,184,393				1,184,393	
Budget Activity 02: Other Missiles											
	Strategic Missiles										
3	Tomahawk	A			90	386,730			90	386,730	U
	Tactical Missiles										
4	AMRAAM	A			169	224,502			169	224,502	U
5	Sidewinder	A			292	119,456			292	119,456	U
6	JSOW	B									U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	Quantity	FY 2020 Total (Base + OCO) Cost	Sec
Budget Activity 01: Ballistic Missiles					
	Modification of Missiles				
1	Trident II Mods			1,177,251	U
	Support Equipment & Facilities				
2	Missile Industrial Facilities	A		7,142	U
Total Ballistic Missiles				1,184,393	
Budget Activity 02: Other Missiles					
	Strategic Missiles				
3	Tomahawk	A	90	386,730	U
	Tactical Missiles				
4	AMRAAM	A	169	224,502	U
5	Sidewinder	A	292	119,456	U
6	JSOW	B			U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
7	Standard Missile	A	125	(491,260)	125	(490,210)			125	(490,210)	U
	Less: Advance Procurement (PY)										U
				491,260		490,210				490,210	
8	Standard Missile										
	Advance Procurement (CY)					125,683				125,683	U
	C (FY 2019 for FY 2020) (M)					(83,789)				(83,789)	
	C (FY 2019 for FY 2021) (M)					(25,137)				(25,137)	
	C (FY 2019 for FY 2022) (M)					(16,757)				(16,757)	
	C (FY 2020 for FY 2021) (M)										
	C (FY 2020 for FY 2022) (M)										
	C (FY 2020 for FY 2023) (M)										
9	Small Diameter Bomb II		90	20,968	750	91,272			750	91,272	U
10	Ram	A	120	106,587	108	96,221			108	96,221	U
11	Joint Air Ground Missile (JAGM)	A		3,789	75	24,109			75	24,109	U
12	Hellfire	A	110	8,771			23	1,530	23	1,530	U
13	Laser Maverick	A		5,040							U
14	Stand off Precision Guided Munitions (SOPGM)	A	19	3,122	31	11,378			31	11,378	U
15	Aerial Targets	A		122,173		127,437		6,500		133,937	U
16	Drones And Decoys	A									U
17	Other Missile Support	A		3,420		3,318				3,318	U
18	LRASM	A	34	107,733	35	111,190			35	111,190	U
19	LCS OTH Missile	A			8	18,156			8	18,156	U
	Modification of Missiles										
20	ESSM	A	31	73,513	45	98,384			45	98,384	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
7	Standard Missile	A		(83,789)	125	(404,523)			125	(404,523)	U
	Less: Advance Procurement (PY)			(-83,789)							U
				----------		----------		----------		----------	
						404,523				404,523	
8	Standard Missile										
	Advance Procurement (CY)					96,085				96,085	U
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2020 for FY 2021) (M)					(58,486)				(58,486)	
	C (FY 2020 for FY 2022) (M)					(20,888)				(20,888)	
	C (FY 2020 for FY 2023) (M)					(16,711)				(16,711)	
9	Small Diameter Bomb II				750	118,466			750	118,466	U
10	Ram	A			120	106,765			120	106,765	U
11	Joint Air Ground Missile (JAGM)	A					382	90,966	382	90,966	U
12	Hellfire	A			29	1,525			29	1,525	U
13	Laser Maverick	A									U
14	Stand off Precision Guided Munitions (SOPGM)	A									U
15	Aerial Targets	A				145,880		6,500		152,380	U
16	Drones And Decoys	A			30	20,000			30	20,000	U
17	Other Missile Support	A				3,388				3,388	U
18	LRASM	A			48	143,200			48	143,200	U
19	LCS OTH Missile	A			18	38,137			18	38,137	U
	Modification of Missiles										
20	ESSM	A			60	128,059			60	128,059	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	Quantity	FY 2020 Total (Base + OCO) Cost	Sec
7	Standard Missile	A	125	(488,312)	U
	Less: Advance Procurement (PY)			(-83,789)	U
				404,523	
8	Standard Missile				
	Advance Procurement (CY)			96,085	U
	C (FY 2019 for FY 2020) (M)				
	C (FY 2019 for FY 2021) (M)				
	C (FY 2019 for FY 2022) (M)				
	C (FY 2020 for FY 2021) (M)			(58,486)	
	C (FY 2020 for FY 2022) (M)			(20,888)	
	C (FY 2020 for FY 2023) (M)			(16,711)	
9	Small Diameter Bomb II		750	118,466	U
10	Ram	A	120	106,765	U
11	Joint Air Ground Missile (JAGM)	A	382	90,966	U
12	Hellfire	A	29	1,525	U
13	Laser Maverick	A			U
14	Stand off Precision Guided Munitions (SOPGM)	A			U
15	Aerial Targets	A		152,380	U
16	Drones And Decoys	A	30	20,000	U
17	Other Missile Support	A		3,388	U
18	LRASM	A	48	143,200	U
19	LCS OTH Missile	A	18	38,137	U
	Modification of Missiles				
20	ESSM	A	60	128,059	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
21	Harpoon Mods	A		15,300		26,840				26,840	U
22	Harm Mods	A		183,368		179,885				179,885	U
23	Standard Missiles Mods	A		11,729							U
	Support Equipment & Facilities										
24	Weapons Industrial Facilities	A		4,021		12,006				12,006	U
25	Fleet Satellite Comm Follow-On	A		39,532		60,279				60,279	U
26	DON PGM Transition Support	A		-176							U
	Ordnance Support Equipment										
27	Ordnance Support Equipment	A		27,629		62,008				62,008	U
	Total Other Missiles			1,798,477		1,946,634		9,594		1,956,228	
	Budget Activity 03: Torpedoes and Related Equipment										
	Torpedoes and Related Equip										
28	SSTD	A		5,240		6,353				6,353	U
29	MK-48 Torpedo	A	41	79,771	53	103,616			53	103,616	U
30	ASW Targets	A		12,399		12,324				12,324	U
	Mod of Torpedoes and Related Equip										
31	MK-54 Torpedo Mods	A		94,699		83,825				83,825	U
32	MK-48 Torpedo ADCAP Mods	A		38,954		40,005				40,005	U
33	Quickstrike Mine	B		6,337		9,758				9,758	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
21	Harpoon Mods	A				25,447				25,447	U
22	Harm Mods	A				183,740				183,740	U
23	Standard Missiles Mods	A				22,500				22,500	U
	Support Equipment & Facilities										
24	Weapons Industrial Facilities	A				1,958				1,958	U
25	Fleet Satellite Comm Follow-On	A				67,380				67,380	U
26	DON PGM Transition Support	A									U
	Ordnance Support Equipment										
27	Ordnance Support Equipment	A				109,427				109,427	U
	Total Other Missiles					2,347,168		97,466		2,444,634	
	Budget Activity 03: Torpedoes and Related Equipment										
	Torpedoes and Related Equip										
28	SSTD	A				5,561				5,561	U
29	MK-48 Torpedo	A			58	114,000			58	114,000	U
30	ASW Targets	A				15,095				15,095	U
	Mod of Torpedoes and Related Equip										
31	MK-54 Torpedo Mods	A				119,453				119,453	U
32	MK-48 Torpedo ADCAP Mods	A				39,508				39,508	U
33	Quickstrike Mine	B				5,183				5,183	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	Quantity	FY 2020 Total (Base + OCO) Cost	Sec
21	Harpoon Mods	A		25,447	U
22	Harm Mods	A		183,740	U
23	Standard Missiles Mods	A		22,500	U
	Support Equipment & Facilities				
24	Weapons Industrial Facilities	A		1,958	U
25	Fleet Satellite Comm Follow-On	A		67,380	U
26	DON PGM Transition Support	A			U
	Ordnance Support Equipment				
27	Ordnance Support Equipment	A		109,427	U
	Total Other Missiles			2,444,634	
	Budget Activity 03: Torpedoes and Related Equipment				
	Torpedoes and Related Equip				
28	SSTD	A		5,561	U
29	MK-48 Torpedo	A	58	114,000	U
30	ASW Targets	A		15,095	U
	Mod of Torpedoes and Related Equip				
31	MK-54 Torpedo Mods	A		119,453	U
32	MK-48 Torpedo ADCAP Mods	A		39,508	U
33	Quickstrike Mine	B		5,183	U

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
	Support Equipment										
34	Torpedo Support Equipment	A		67,744		78,371				78,371	U
35	ASW Range Support	A		3,864		3,872				3,872	U
	Destination Transportation										
36	First Destination Transportation	A		3,961		3,726				3,726	U
	Total Torpedoes and Related Equipment			312,969		341,850				341,850	
	Budget Activity 04: Other Weapons										
	Guns and Gun Mounts										
37	Small Arms and Weapons	A		12,832		15,067		1,540		16,607	U
	Modification of Guns and Gun Mounts										
38	CIWS Mods	A		72,698		63,318				63,318	U
39	Coast Guard Weapons	A		47,931		40,823				40,823	U
40	Gun Mount Mods	A		73,328		71,633		3,000		74,633	U
41	LCS Module Weapons	B	88	10,610	90	11,350			90	11,350	U
42	Cruiser Modernization Weapons	A		34,825							U
43	Airborne Mine Neutralization Systems	A		16,925		21,465				21,465	U
	Other										
44	Cancelled Account Adjustments	A		30							U
	Total Other Weapons			269,179		223,656		4,540		228,196	

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
	Support Equipment										
34	Torpedo Support Equipment	A				79,028				79,028	U
35	ASW Range Support	A				3,890				3,890	U
	Destination Transportation										
36	First Destination Transportation	A				3,803				3,803	U
	Total Torpedoes and Related Equipment					385,521				385,521	
	Budget Activity 04: Other Weapons										
	Guns and Gun Mounts										
37	Small Arms and Weapons	A				14,797				14,797	U
	Modification of Guns and Gun Mounts										
38	CIWS Mods	A				44,126				44,126	U
39	Coast Guard Weapons	A				44,980				44,980	U
40	Gun Mount Mods	A				66,376				66,376	U
41	LCS Module Weapons	B			120	14,585			120	14,585	U
42	Cruiser Modernization Weapons	A									U
43	Airborne Mine Neutralization Systems	A				7,160				7,160	U
	Other										
44	Cancelled Account Adjustments	A									U
	Total Other Weapons					192,024				192,024	

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
	Support Equipment				
34	Torpedo Support Equipment	A		79,028	U
35	ASW Range Support	A		3,890	U
	Destination Transportation				
36	First Destination Transportation	A		3,803	U
	Total Torpedoes and Related Equipment			385,521	
	Budget Activity 04: Other Weapons				
	Guns and Gun Mounts				
37	Small Arms and Weapons	A		14,797	U
	Modification of Guns and Gun Mounts				
38	CIWS Mods	A		44,126	U
39	Coast Guard Weapons	A		44,980	U
40	Gun Mount Mods	A		66,376	U
41	LCS Module Weapons	B	120	14,585	U
42	Cruiser Modernization Weapons	A			U
43	Airborne Mine Neutralization Systems	A		7,160	U
	Other				
44	Cancelled Account Adjustments	A			U
	Total Other Weapons			192,024	

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
	Budget Activity 06: Spares and Repair Parts										
	Spares and Repair Parts										
45	Spares and Repair Parts	A		102,287		135,688				135,688	U
	Total Spares and Repair Parts			102,287		135,688				135,688	
	Total Weapons Procurement, Navy			3,621,908		3,711,576		14,134		3,725,710	

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
Budget Activity 06: Spares and Repair Parts											
Spares and Repair Parts											
45	Spares and Repair Parts	A				126,138				126,138	U
Total Spares and Repair Parts						126,138				126,138	
Total Weapons Procurement, Navy						4,235,244		97,466		4,332,710	

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

Appropriation: 1507N Weapons Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
Budget Activity 06: Spares and Repair Parts					
Spares and Repair Parts					
45	Spares and Repair Parts	A		126,138	U
Total Spares and Repair Parts				126,138	
Total Weapons Procurement, Navy				4,332,710	

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Appropriation 1507N: Weapons Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
1	01	02	1250	TRIDENT II Mods	Volume 1 - 1
2	01	03	1350	Missile Industrial Facilities	Volume 1 - 39

Appropriation 1507N: Weapons Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
3	02	01	2101	Tomahawk	Volume 1 - 43
4	02	02	2206	AMRAAM	Volume 1 - 61
5	02	02	2209	Sidewinder	Volume 1 - 73
6	02	02	2230	JT Standoff Weapon (JSOW)	Volume 1 - 89
7	02	02	2234	Standard Missile	Volume 1 - 93
8	02	02	2234	Standard Missile, Advance Procurement	Volume 1 - 107
9	02	02	2238	Small Diameter Bomb II (SDB II)	Volume 1 - 111
10	02	02	2242	Rolling Airframe Missile (RAM)	Volume 1 - 121

Appropriation 1507N: Weapons Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
11	02	02	2248	Joint Air Ground Missile (JAGM)	Volume 1 - 145
12	02	02	2254	Hellfire	Volume 1 - 155
13	02	02	2255	Laser Maverick	Volume 1 - 165
14	02	02	2264	Stand Off Precision Guided Munitions (SOPGM)	Volume 1 - 167
15	02	02	2280	Aerial Targets	Volume 1 - 173
16	02	02	2285	Drones and Decoys	Volume 1 - 199
17	02	02	2290	Other Missile Support	Volume 1 - 205
18	02	02	2291	LRASM	Volume 1 - 209
19	02	02	2292	LCS OTH Missile	Volume 1 - 219
20	02	03	2307	Evolved Sea Sparrow Missile (ESSM)	Volume 1 - 227
21	02	03	2326	Harpoon Mods	Volume 1 - 239
22	02	03	2327	HARM Mods	Volume 1 - 245
23	02	03	2356	Standard Missiles Mods	Volume 1 - 253
24	02	04	2420	Weapons Industrial Facilities	Volume 1 - 259
25	02	04	2433	Fleet Satellite Comm Follow-On	Volume 1 - 263
27	02	05	2500	Ordnance Support Equipment	Volume 1 - 273

Appropriation 1507N: Weapons Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
28	03	01	3113	Surface Ship Torpedo Def (SSTD)	Volume 1 - 277
29	03	01	3117	MK-48 Torpedo	Volume 1 - 283
30	03	01	3141	ASW Targets	Volume 1 - 295
31	03	02	3215	MK-54 Torpedo Mods	Volume 1 - 309
32	03	02	3225	MK-48 Torpedo ADCAP Mods	Volume 1 - 329
33	03	02	3231	Quickstrike Mine	Volume 1 - 343
34	03	03	3301	Torpedo Support Equipment	Volume 1 - 347
35	03	03	3302	ASW Range Support	Volume 1 - 381
36	03	04	2410	First Destination Transportation	Volume 1 - 385

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Line #	BA	BSA	Line Item Number	Line Item Title	Page
37	04	01	4129	Small Arms and Weapons	Volume 1 - 389
38	04	02	4205	Close-In Wpns Sys (CIWS) Mods	Volume 1 - 401

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Line #	BA	BSA	Line Item Number	Line Item Title	Page
39	04	02	4206	Coast Guard Weapons	Volume 1 - 413
40	04	02	4217	Gun Mount Mods	Volume 1 - 427
41	04	02	4221	LCS Module Weapons	Volume 1 - 439
42	04	02	4223	Cruiser Modernization Weapons	Volume 1 - 447
43	04	02	4225	Airborne Mine Neutralization Systems	Volume 1 - 451
44	04	04	4500	Cancelled Account Adjustments	Volume 1 - 461

Appropriation 1507N: Weapons Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
45	06	01	6120	Spares and Repair Parts	Volume 1 - 463

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Line Item Title	Line Item Number	Line #	BA	BSA	Page
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ASW Targets	3141	30	03	01	Volume 1 - 295
Aerial Targets	2280	15	02	02	Volume 1 - 173
Airborne Mine Neutralization Systems	4225	43	04	02	Volume 1 - 451
Cancelled Account Adjustments	4500	44	04	04	Volume 1 - 461
Close-In Wpns Sys (CIWS) Mods	4205	38	04	02	Volume 1 - 401
Coast Guard Weapons	4206	39	04	02	Volume 1 - 413
Cruiser Modernization Weapons	4223	42	04	02	Volume 1 - 447
Drones and Decoys	2285	16	02	02	Volume 1 - 199
Evolved Sea Sparrow Missile (ESSM)	2307	20	02	03	Volume 1 - 227
First Destination Transportation	2410	36	03	04	Volume 1 - 385
Fleet Satellite Comm Follow-On	2433	25	02	04	Volume 1 - 263
Gun Mount Mods	4217	40	04	02	Volume 1 - 427
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Harpoon Mods	2326	21	02	03	Volume 1 - 239
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Line Item Title	Line Item Number	Line #	BA	BSA	Page
JT Standoff Weapon (JSOW)	2230	6	02	02	Volume 1 - 89
Joint Air Ground Missile (JAGM)	2248	11	02	02	Volume 1 - 145
LCS Module Weapons	4221	41	04	02	Volume 1 - 439
LCS OTH Missile	2292	19	02	02	Volume 1 - 219
LRASM	2291	18	02	02	Volume 1 - 209
Laser Maverick	2255	13	02	02	Volume 1 - 165
MK-48 Torpedo	3117	29	03	01	Volume 1 - 283
MK-48 Torpedo ADCAP Mods	3225	32	03	02	Volume 1 - 329
MK-54 Torpedo Mods	3215	31	03	02	Volume 1 - 309
Missile Industrial Facilities	1350	2	01	03	Volume 1 - 39
Ordnance Support Equipment	2500	27	02	05	Volume 1 - 273
Other Missile Support	2290	17	02	02	Volume 1 - 205
Quickstrike Mine	3231	33	03	02	Volume 1 - 343
Rolling Airframe Missile (RAM)	2242	10	02	02	Volume 1 - 121
Sidewinder	2209	5	02	02	Volume 1 - 73
Small Arms and Weapons	4129	37	04	01	Volume 1 - 389
Small Diameter Bomb II (SDB II)	2238	9	02	02	Volume 1 - 111
Spares and Repair Parts	6120	45	06	01	Volume 1 - 463
Stand Off Precision Guided Munitions (SOPGM)	2264	14	02	02	Volume 1 - 167
Standard Missile	2234	7	02	02	Volume 1 - 93

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Standard Missile, Advance Procurement	2234	8	02	02	Volume 1 - 107
Standard Missiles Mods	2356	23	02	03	Volume 1 - 253
Surface Ship Torpedo Def (SSTD)	3113	28	03	01	Volume 1 - 277
TRIDENT II Mods	1250	1	01	02	Volume 1 - 1
Tomahawk	2101	3	02	01	Volume 1 - 43
Torpedo Support Equipment	3301	34	03	03	Volume 1 - 347
Weapons Industrial Facilities	2420	24	02	04	Volume 1 - 259

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 01: Ballistic Missiles / BSA 2: Modification of Missiles	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0603561N, 06030570N, 09012111N, 0101221N

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	14,515.305	1,131.910	1,056.750	0.000	1,177.251	1,177.251	1,215.624	1,204.762	1,288.753	1,318.818	3,215.106	26,124.279
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	14,515.305	1,131.910	1,056.750	0.000	1,177.251	1,177.251	1,215.624	1,204.762	1,288.753	1,318.818	3,215.106	26,124.279
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**14,515.305**	**1,131.910**	**1,056.750**	**0.000**	**1,177.251**	**1,177.251**	**1,215.624**	**1,204.762**	**1,288.753**	**1,318.818**	**3,215.106**	**26,124.279**
(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 Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $1,177.251M for Overseas Contingency Operations (OCO); of which $1,177.251M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The TRIDENT II (D5) missiles will be carried on OHIO CLASS Fleet Ballistic Missile Submarines through 2042 and will be the initial payload for the COLUMBIA Class Fleet Ballistic Missile Submarines. The D5 Life Extension (D5LE) program will ensure that the United States continues to maintain a highly survivable strategic deterrent well into the 21st century. The TRIDENT II missile (1) enhances fleet ballistic missile submarine survivability as it increases the sea launched ballistic missile range at full payload to exploit the total patrol area available to the TRIDENT submarine, (2) minimizes total weapon system costs as it has increased the sea launched ballistic missile payload to the level permitted by the size of the TRIDENT submarine launch tube, thereby allowing mission capability to be achieved with fewer submarines, and (3) has added an efficient hard target kill capability to the sea launched ballistic missiles.

D5 Life Extension Costs Include:

Production Support: Funding supports D5 Life Extension (D5LE) system integration, D5LE tooling and test equipment, D5LE Flight Test Instrumentation and Analysis, support for the new Test Missile Kits (TMK's), and D5LE end of production costs.

Guidance Hardware: Includes procurement of subcomponents necessary for a complete Guidance System which consists of an Inertial Measurement Unit (IMU) and Electronics Assembly (EA). Within the IMU and EA there are numerous sub-components which are included in this cost element including Guidance Circuit Card Assemblies (CCA), Guidance Accelerometer Sensors (PIGA), Interferometric Fiber Optic Gyros (IFOG), Detector Package Assemblies (DPA) and Mk6 LE Electronic Part Sets (LEEP) and associated production support.

Fleet Return Missile Electronic SPALT Kits: Includes procurement of the 4 Missile Electronics Packages and associated production support in order to extend the life of the D5 Missile to align with the Ohio Class life.

Joint Fuze Sustainment: Includes the procurement of the Arming Fuzing & Firing (AF&F) kits.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 01: Ballistic Missiles / BSA 2: Modification of Missiles	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603561N, 06030570N, 09012111N, 0101221N
Line Item MDAP/MAIS Code: N/A		

Operating and Support Costs Include:

Warhead Components: Includes production of the W76-1/Mk4A Reentry Body assembly and associated support equipment including Reentry Body cabling and Reentry Body Shells and supports the efforts required to produce a low yield variant (76-2).

The Shape Stable Nose Tip (SSNT) Program: The Mk4A SSNT effort will convert RB forward shell assemblies (FSA's) from legacy carbon composite nose tips to SSNT's in order to provide more consistent and predictable flight performance characteristics of the weapon system.

Tooling, Test/Support Equipment: Includes the refresh and/or replacement of aging Test/Evaluation equipment experiencing obsolescence.

Containers: Includes procurement of shipping containers for post DD250 D5 Missile components, test instrumentation, and Mk4/Mk5 Re-entry bodies.

Systems integration/planning: Provides for system component management and integration as well as master schedule oversight and planning.

Supportability Modifications/SPALT Insertion - Provides for installation costs for Missile Strategic Program Alterations (SPALT's) including alterations to igniters, equipment sections, re-entry bodies and motor ancillary equipment.

End of Production Missile and Guidance Costs - Provides for end of production spares as well as costs associated with shutting down production lines.

Solid Rocket Motor's (SRM's) and Post Boost Control systems (PBCS's): Includes procurement of SRM's, PBCS's, and all associated costs including production requalification, HMX procurement, tooling, railcar support and Production Evaluation Testing and Static Firing.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 01: Ballistic Missiles / BSA 2: Modification of Missiles	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603561N, 06030570N, 09012111N, 0101221N
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / TRIDENT II Mods - D5 Life Extension	P-5a, P-21		178	- / 9,829.513	- / 642.766	- / 576.540	- / 0.000	- / 647.522	- / 647.522
P-5	2 / TRIDENT II Mods -Operating and Support Costs	P-5a, P-21			- / 4,685.792	- / 489.144	- / 480.210	- / 0.000	- / 529.729	- / 529.729
P-40	**Total Gross/Weapon System Cost**				**- / 14,515.305**	**- / 1,131.910**	**- / 1,056.750**	**- / 0.000**	**- / 1,177.251**	**- / 1,177.251**

*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:
Funding in the TRIDENT II Mods line is required to continue the procurement of TRIDENT II missiles and currently supports the life-extension of the D5 missile.

The FY 2020 request of $647.522 million for the D5 Life Extension (D5LE) Program supports the production of the redesigned guidance system and missile electronics packages, which must be replaced to support the extended service life of the Ohio Class Submarines. FY 2020 funding procures missile electronic and guidance SPALT kits as well as other critical components required to support the extended SSBN hull life for a 14 SSBN TRIDENT II program. Also included is the procurement of the Arming Fuzing & Firing (AF&F) kits.

Increases/Decreases from FY 2019 to FY 2020 include:
The Joint Fuze Sustainment budget line depicts a quantity increase from 30 in FY 2019 to 190 in FY 2020, however there is also a significant decrease in unit cost. The unit cost decrease is more a result of a decrease in life of part buys (LOPB) and commercial off the shelf items required to support assembly, rather than the increased quantity of AF&F's. Additionally, FY 2019 funding supports full rate production of heterojunction bipolar transistors, application specific integrated circuits and ignitors, all required to support full assembly of the AF&F in FY 2020.
An increase in Production Support for Test Missile Kit (TMK) procurements. TMK's are necessary for flight testing and the procurement baseline is driven by the D5LE flight test schedule. The Test Missile Kit (TMK) is set of electronic packages, antennas, and ordnance devices that are installed on a tactical missile to convert it to a test missile. The TMK consists of three subsystems; flight termination, tracking, and telemetry. The flight termination subsystem provides the capability to destruct the missile for range safety. The tracking subsystem provides real time range and velocity for range safety and trajectory data for post flight analyses. The telemetry subsystem provides in-flight data for flight performance analysis. In FY 2019 the funding profile was unusually low due to the UK procuring the majority of the TMK's (US only procured 4), however in FY 2020 the US resumes the normal procurement baseline of 15 TMK's, in line with the FY 2018 profile.

The FY 2020 request of $529.729 million for Operating and Support Costs funds efforts associated with the sustainment of TRIDENT II (D5) missiles to include system integration efforts, replacement of aging rocket motors, refreshes and replacement of D5 legacy tooling and test support equipment, Supportability Mods/Strategic Programs Alteration (SPALT) Insertion, Warhead Components and Shape Stable Nose Tip (SSNT).

Increases from FY 2019 to FY 2020 include:
An increase in Warhead Components for 4 additional Joint Test Assemblies (JTA's) to support warhead Retrofit Evaluation System Testing.
An increase in Shape Stable Nose Tip (SSNT) to support the first flight test which is necessary to evaluate the performance of the developmental hardware of the SSNT flight test body.
An increase in Tooling Test Support Equipment including but not limited to:
-Missile Service Unit (MSU) Refresh which consists of procurement, production and Strategic Weapon Facility (SWF) integration support of 3 units. The MSU allows for reconfiguration of the re-entry body on the submarine itself for flight testing (missile doesn't have to be offloaded off the submarine)
-The procurement of three Kneel Down Transporters (KDT's) which are required to transport all up missiles and 1st stage motors. Both the missile and the 1st stage motors require special vehicles to transport them from various buildings/locations on the Strategic Weapon's Facilities (SWF's) due to their weight.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 01: Ballistic Missiles / BSA 2: Modification of Missiles	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603561N, 06030570N, 09012111N, 0101221N
Line Item MDAP/MAIS Code: N/A		

-Test Missile Kit System Acceptance Checkout Equipment (KSACE) refresh. The KSACE performs production acceptance testing of TMK's prior to test flights. The refresh also includes all spare parts for sustainment of the test console.
-Command Sequencer and Power Distribution Unit Test console refresh. This test console performs production acceptance testing on both the Command Sequencers (CS) and the Power Distribution Unit's (PDU). The CS is one of the 4 Missile Electronics Packages being refreshed for D5 Life Extension and The PDU distributes power from one single battery to all the electronics on the Missile.
An increase in End of Production Missile and Guidance Costs for initial shutdown efforts associated with full Guidance production line shutdown commencing in FY 2021.
An increase in Rocket Motor and PBCS Other Costs for:
-2 Additional Performance Evaluation Tests
- The FY 2019 funding profile was lower due to the increased UK procurement profile and the UK being responsible for a higher portion of shared costs, however in FY 2020 the UK procurement profile is reduced and the US resumes the normal level of shared costs.
An increase in Warhead Components for 4 additional Joint Test Assemblies (JTA's) to support Warhead Retrofit Evaluation System Testing.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:** 178	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	9,829.513	642.766	576.540	0.000	647.522	647.522
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	9,829.513	642.766	576.540	0.000	647.522	647.522
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**9,829.513**	**642.766**	**576.540**	**0.000**	**647.522**	**647.522**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - Missile End Cost																		
Recurring Cost																		
1.1.1) Airframe & Motor Flyaway Cost(†)	50,814.833	48	2,439.112	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) SPALT Kits(†)	3,580.556	108	386.700	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) Prior Year Procurement	-	-	-1,183.600	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*1,642.212*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway - Missile End Cost	**-**	**-**	***1,642.212***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - Missile Hardware Cost																		
Recurring Cost																		
2.1.1) MIssile Hardware	-	-	1,549.266	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*1,549.266*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - Missile Hardware Cost	**-**	**-**	***1,549.266***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - Redesign Cost																		
Recurring Cost																		
3.1.1) Redesign	-	-	2,834.832	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*2,834.832*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - Redesign Cost	**-**	**-**	***2,834.832***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - Joint Fuze Sustainment Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	P-1 Line Item Number / Title: 1250 / TRIDENT II Mods	Item Number / Title [DODIC]: 1 / TRIDENT II Mods - D5 Life Extension
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code: 178	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Recurring Cost																		
4.1.1) Joint Fuze Sustainment(†) (1)	-	-	48.075	-	-	37.254	2,148.400	30	64.452	-	-	0.000	348.842	190	66.280	348.842	190	66.280
Subtotal: Recurring Cost	-	-	*48.075*	-	-	*37.254*	-	-	*64.452*	-	-	*0.000*	-	-	*66.280*	-	-	*66.280*
Subtotal: Hardware - Joint Fuze Sustainment Cost	**-**	**-**	***48.075***	**-**	**-**	***37.254***	**-**	**-**	***64.452***	**-**	**-**	***0.000***	**-**	**-**	***66.280***	**-**	**-**	***66.280***
Hardware - Production Support Cost																		
Recurring Cost																		
5.1.1) Production Support (2)	-	-	1,693.968	-	-	234.256	-	-	148.616	-	-	0.000	-	-	210.851	-	-	210.851
Subtotal: Recurring Cost	-	-	*1,693.968*	-	-	*234.256*	-	-	*148.616*	-	-	*0.000*	-	-	*210.851*	-	-	*210.851*
Subtotal: Hardware - Production Support Cost	**-**	**-**	***1,693.968***	**-**	**-**	***234.256***	**-**	**-**	***148.616***	**-**	**-**	***0.000***	**-**	**-**	***210.851***	**-**	**-**	***210.851***
Hardware - Guidance Hardware Cost																		
Recurring Cost																		
6.1.1) Circuit Card Assemblies (CCA's)(†)	1,557.741	313	487.573	1,591.000	55	87.505	1,515.000	62	93.930	-	-	0.000	1,543.790	62	95.715	1,543.790	62	95.715
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)	138.005	731	100.882	125.000	185	23.125	122.000	200	24.400	-	-	0.000	124.320	200	24.864	124.320	200	24.864
6.1.3) Detector Package Assembly (DPA)	220.000	868	190.960	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)(†)	994.101	554	550.732	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)	236.899	675	159.907	240.000	180	43.200	231.000	200	46.200	-	-	0.000	210.000	220	46.200	210.000	220	46.200
6.1.6) Guidance Production Support	-	-	259.363	-	-	60.016	-	-	45.871	-	-	0.000	-	-	46.741	-	-	46.741
Subtotal: Recurring Cost	-	-	*1,749.417*	-	-	*213.846*	-	-	*210.401*	-	-	*0.000*	-	-	*213.520*	-	-	*213.520*
Subtotal: Hardware - Guidance Hardware Cost	**-**	**-**	***1,749.417***	**-**	**-**	***213.846***	**-**	**-**	***210.401***	**-**	**-**	***0.000***	**-**	**-**	***213.520***	**-**	**-**	***213.520***
Hardware - Fleet Return Missile Electronic SPALT Kits Cost																		
Recurring Cost																		
7.1.1) Flight Control Electronic Assembly (FCEA)(†)	613.712	73	44.801	630.700	40	25.228	642.683	41	26.350	-	-	0.000	654.881	42	27.505	654.881	42	27.505

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	P-1 Line Item Number / Title: 1250 / TRIDENT II Mods	Item Number / Title [DODIC]: 1 / TRIDENT II Mods - D5 Life Extension
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code: 178	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
7.1.2) Missile Inverter(†)	837.867	45	37.704	862.400	20	17.248	878.760	25	21.969	-	-	0.000	895.480	25	22.387	895.480	25	22.387
7.1.3) Command Sequencer(†)	662.349	43	28.481	682.000	19	12.958	694.947	19	13.204	-	-	0.000	708.158	19	13.455	708.158	19	13.455
7.1.4) Interlocks(†)	1,162.065	77	89.479	1,194.561	41	48.977	1,217.244	41	49.907	-	-	0.000	1,240.390	41	50.856	1,240.390	41	50.856
7.1.5) Missile Production Support	-	-	111.278	-	-	52.999	-	-	41.641	-	-	0.000	-	-	42.668	-	-	42.668
Subtotal: Recurring Cost	-	-	*311.743*	-	-	*157.410*	-	-	*153.071*	-	-	*0.000*	-	-	*156.871*	-	-	*156.871*
Subtotal: Hardware - Fleet Return Missile Electronic SPALT Kits Cost	**-**	**-**	***311.743***	**-**	**-**	***157.410***	**-**	**-**	***153.071***	**-**	**-**	***0.000***	**-**	**-**	***156.871***	**-**	**-**	***156.871***
Gross/Weapon System Cost	**-**	**-**	**9,829.513**	**-**	**-**	**642.766**	**-**	**-**	**576.540**	**-**	**-**	**0.000**	**-**	**-**	**647.522**	**-**	**-**	**647.522**

(†) indicates the presence of a P-5a

Footnotes:

(1) The Joint Fuze Sustainment budget line depicts a quantity increase from 30 in FY 2019 to 190 in FY 2020, however there is also a significant decrease in unit cost. The unit cost decrease is more a result of a decrease in life of part buys (LOPB) and commercial off the shelf items required to support assembly, rather than the increased quantity of AF&F's. Additionally, FY 2019 funding supports full rate production of heterojunction bipolar transistors, application specific integrated circuits and ignitors, all required to support full assembly of the AF&F in FY 2020.

(2) An increase in Production Support for Test Missile Kit (TMK) procurements. TMK's are necessary for flight testing and the procurement baseline is driven by the D5LE flight test schedule. The Test Missile Kit (TMK) is set of electronic packages, antennas, and ordnance devices that are installed on a tactical missile to convert it to a test missile. The TMK consists of three subsystems; flight termination, tracking, and telemetry. The flight termination subsystem provides the capability to destruct the missile for range safety. The tracking subsystem provides real time range and velocity for range safety and trajectory data for post flight analyses. The telemetry subsystem provides in-flight data for flight performance analysis. In FY 2019 the funding profile was unusually low due to the UK procuring the majority of the TMK's (US only procured 4), however in FY 2020 the US resumes the normal procurement baseline of 15 TMK's, in line with the FY 2018 profile.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	P-1 Line Item Number / Title: 1250 / TRIDENT II Mods	Item Number / Title [DODIC]: 1 / TRIDENT II Mods - D5 Life Extension

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) Airframe & Motor Flyaway Cost		2011	Lockheed Martin / Sunnyvale, CA	Various	SSP - Crystal City, VA	Dec 2010	Feb 2014	24	22,098.375	Y		
1.1.1) Airframe & Motor Flyaway Cost		2012	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Dec 2011	Feb 2015	24	22,150.583	Y		
1.1.2) SPALT Kits(†)		2011	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Dec 2010	Feb 2014	12	6,460.330	Y		
1.1.2) SPALT Kits(†)		2012	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Dec 2011	Feb 2015	24	3,221.710	Y		
1.1.2) SPALT Kits(†)		2013	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Dec 2012	Feb 2016	24	3,193.080	Y		
1.1.2) SPALT Kits(†)		2014	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2013	Feb 2017	24	3,180.880	Y		
1.1.2) SPALT Kits(†)		2015	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2014	Feb 2018	22	3,281.727	Y		
1.1.2) SPALT Kits(†)		2016	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Feb 2019	2	3,341.000	Y		
4.1.1) Joint Fuze Sustainment(†)		2019	Department of Energy (DOE) / Kansas City	MIPR	SSP - Washington Navy Yard	Jan 2019	Feb 2020	30	2,148.400	Y		
4.1.1) Joint Fuze Sustainment(†)	✓	2020	Department of Energy (DOE) / Kansas City	MIPR	SSP - Washington Navy Yard	Oct 2019	Nov 2020	190	348.842	Y		
6.1.1) Circuit Card Assemblies (CCA's)(†)		2015	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2015	Sep 2015	50	1,602.000	Y		
6.1.1) Circuit Card Assemblies (CCA's)(†)		2016	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2016	Sep 2016	51	1,629.235	Y		
6.1.1) Circuit Card Assemblies (CCA's)(†)		2017	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2017	Sep 2017	49	1,660.184	Y		
6.1.1) Circuit Card Assemblies (CCA's)(†)		2018	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2018	Sep 2018	55	1,591.000	Y		
6.1.1) Circuit Card Assemblies (CCA's)(†)		2019	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2019	Sep 2019	62	1,515.000	Y		
6.1.1) Circuit Card Assemblies (CCA's)(†)	✓	2020	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2020	Sep 2020	62	1,543.790	Y		
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)		2015	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2015	Feb 2016	130	144.000	Y		
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)		2016	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2016	Feb 2017	130	146.738	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)		2017	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2017	Feb 2018	130	149.523	Y		
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)		2018	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2018	Feb 2019	185	125.000	Y		
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)		2019	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2019	Feb 2020	200	122.000	Y		
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)(†)	✓	2020	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2020	Feb 2021	200	124.320	Y		
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)(†)		2015	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2015	Apr 2016	109	1,014.927	Y		
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)		2015	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2015	Jun 2016	125	252.000	Y		
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)		2016	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2016	Jun 2017	125	256.792	Y		
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)		2017	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2017	Jun 2018	125	261.664	Y		
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)		2018	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2018	Jun 2019	180	240.000	Y		
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)		2019	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2019	Jun 2020	200	231.000	Y		
6.1.5) Guidance Accelerometer Sensors (PIGA)(†)	✓	2020	Charles Stark Draper Laboratory, INC / Cambridge MA	Various	SSP - Washington Navy Yard	Feb 2020	Jun 2021	220	210.000	Y		
7.1.1) Flight Control Electronic Assembly (FCEA)(†)		2016	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Nov 2017	33	607.394	Y		
7.1.1) Flight Control Electronic Assembly (FCEA)(†)		2017	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2016	Nov 2018	40	618.925	Y		
7.1.1) Flight Control Electronic Assembly (FCEA)(†)		2018	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2017	Nov 2019	40	630.700	Y		
7.1.1) Flight Control Electronic Assembly (FCEA)(†)		2019	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2018	Nov 2020	41	642.683	Y		
7.1.1) Flight Control Electronic Assembly (FCEA)(†)	✓	2020	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2019	Nov 2021	42	654.881	Y		
7.1.2) Missile Inverter(†)		2016	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Jan 2018	24	830.500	Y		
7.1.2) Missile Inverter(†)		2017	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2016	Jan 2019	21	846.286	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
7.1.2) Missile Inverter(†)		2018	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2017	Jan 2020	20	862.400	Y		
7.1.2) Missile Inverter(†)		2019	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2018	Jan 2021	25	878.760	Y		
7.1.2) Missile Inverter(†)	✓	2020	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2019	Jan 2022	25	895.480	Y		
7.1.3) Command Sequencer(†)		2016	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Feb 2018	24	656.833	Y		
7.1.3) Command Sequencer(†)		2017	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2016	Feb 2019	19	669.316	Y		
7.1.3) Command Sequencer(†)		2018	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2017	Feb 2020	19	682.000	Y		
7.1.3) Command Sequencer(†)		2019	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2018	Feb 2021	19	694.947	Y		
7.1.3) Command Sequencer(†)	✓	2020	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2019	Feb 2022	19	708.158	Y		
7.1.4) Interlocks(†)		2016	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Nov 2017	36	1,150.417	Y		
7.1.4) Interlocks(†)		2017	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2016	Nov 2018	41	1,172.293	Y		
7.1.4) Interlocks(†)		2018	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2017	Nov 2019	41	1,194.561	Y		
7.1.4) Interlocks(†)		2019	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2018	Nov 2020	41	1,217.244	Y		
7.1.4) Interlocks(†)	✓	2020	LOCKHEED MARTIN / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2019	Nov 2021	41	1,240.390	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
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Cost Elements (Units in Each)							Fiscal Year 2011												Fiscal Year 2012												BALANCE
							Calendar Year 2011												Calendar Year 2012												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2010	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	0	12			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2012	NAVY	24	0	24															A -	-	-	-	-	-	-	-	-	-	24
	1	2013	NAVY	24	0	24																									24
	1	2014	NAVY	24	0	24																									24
	1	2015	NAVY	22	0	22																									22
	1	2016	NAVY	2	0	2																									2
4.1.1) Joint Fuze Sustainment (1)																															
	2	2019	NAVY	30	0	30																									30
✓	2	2020	NAVY	190	0	190																									190
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	0	50																									50
	3	2016	NAVY	51	0	51																									51
	3	2017	NAVY	49	0	49																									49
	3	2018	NAVY	55	0	55																									55
	3	2019	NAVY	62	0	62																									62
✓	3	2020	NAVY	62	0	62																									62
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	0	130																									130
	4	2016	NAVY	130	0	130																									130
	4	2017	NAVY	130	0	130																									130
	4	2018	NAVY	185	0	185																									185
	4	2019	NAVY	200	0	200																									200
✓	4	2020	NAVY	200	0	200																									200
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	0	109																									109
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	0	125																									125
	6	2016	NAVY	125	0	125																									125
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2011												Fiscal Year 2012												BALANCE
										Calendar Year 2011												Calendar Year 2012									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2010	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	2017	NAVY	125	0	125																									125
	6	2018	NAVY	180	0	180																									180
	6	2019	NAVY	200	0	200																									200
✓	6	2020	NAVY	220	0	220																									220
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	0	33																									33
	7	2017	NAVY	40	0	40																									40
	7	2018	NAVY	40	0	40																									40
	7	2019	NAVY	41	0	41																									41
✓	7	2020	NAVY	42	0	42																									42
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	0	24																									24
	8	2017	NAVY	21	0	21																									21
	8	2018	NAVY	20	0	20																									20
	8	2019	NAVY	25	0	25																									25
✓	8	2020	NAVY	25	0	25																									25
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	0	24																									24
	9	2017	NAVY	19	0	19																									19
	9	2018	NAVY	19	0	19																									19
	9	2019	NAVY	19	0	19																									19
✓	9	2020	NAVY	19	0	19																									19
7.1.4) Interlocks																															
	10	2016	NAVY	36	0	36																									36
	10	2017	NAVY	41	0	41																									41
	10	2018	NAVY	41	0	41																									41
	10	2019	NAVY	41	0	41																									41
✓	10	2020	NAVY	41	0	41																									41
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2013												Fiscal Year 2014												BALANCE
							Calendar Year 2013												Calendar Year 2014												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2012	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
	1	2012	NAVY	24	0	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
	1	2013	NAVY	24	0	24			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
	1	2014	NAVY	24	0	24														A -	-	-	-	-	-	-	-	-	-	-	24
	1	2015	NAVY	22	0	22																									22
	1	2016	NAVY	2	0	2																									2
4.1.1) Joint Fuze Sustainment [1]																															
	2	2019	NAVY	30	0	30																									30
✓	2	2020	NAVY	190	0	190																									190
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	0	50																									50
	3	2016	NAVY	51	0	51																									51
	3	2017	NAVY	49	0	49																									49
	3	2018	NAVY	55	0	55																									55
	3	2019	NAVY	62	0	62																									62
✓	3	2020	NAVY	62	0	62																									62
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	0	130																									130
	4	2016	NAVY	130	0	130																									130
	4	2017	NAVY	130	0	130																									130
	4	2018	NAVY	185	0	185																									185
	4	2019	NAVY	200	0	200																									200
✓	4	2020	NAVY	200	0	200																									200
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	0	109																									109
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	0	125																									125
	6	2016	NAVY	125	0	125																									125
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2013												Fiscal Year 2014												BALANCE
										Calendar Year 2013												Calendar Year 2014									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2012	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	2017	NAVY	125	0	125																									125
	6	2018	NAVY	180	0	180																									180
	6	2019	NAVY	200	0	200																									200
✓	6	2020	NAVY	220	0	220																									220
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	0	33																									33
	7	2017	NAVY	40	0	40																									40
	7	2018	NAVY	40	0	40																									40
	7	2019	NAVY	41	0	41																									41
✓	7	2020	NAVY	42	0	42																									42
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	0	24																									24
	8	2017	NAVY	21	0	21																									21
	8	2018	NAVY	20	0	20																									20
	8	2019	NAVY	25	0	25																									25
✓	8	2020	NAVY	25	0	25																									25
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	0	24																									24
	9	2017	NAVY	19	0	19																									19
	9	2018	NAVY	19	0	19																									19
	9	2019	NAVY	19	0	19																									19
✓	9	2020	NAVY	19	0	19																									19
7.1.4) Interlocks																															
	10	2016	NAVY	36	0	36																									36
	10	2017	NAVY	41	0	41																									41
	10	2018	NAVY	41	0	41																									41
	10	2019	NAVY	41	0	41																									41
✓	10	2020	NAVY	41	0	41																									41
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
							Calendar Year 2015												Calendar Year 2016												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	8	4	1	1	1	1																					0
	1	2012	NAVY	24	0	24	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2									0
	1	2013	NAVY	24	0	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	8
	1	2014	NAVY	24	0	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
	1	2015	NAVY	22	0	22		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
	1	2016	NAVY	2	0	2														A -	-	-	-	-	-	-	-	-	-	-	2
4.1.1) Joint Fuze Sustainment [1]																															
	2	2019	NAVY	30	0	30																									30
✓	2	2020	NAVY	190	0	190																									190
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	0	50					A -	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	5	5		0
	3	2016	NAVY	51	0	51																	A -	-	-	-	-	-	-	5	46
	3	2017	NAVY	49	0	49																									49
	3	2018	NAVY	55	0	55																									55
	3	2019	NAVY	62	0	62																									62
✓	3	2020	NAVY	62	0	62																									62
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	0	130					A -	-	-	-	-	-	-	-	-	-	-	-	10	10	11	11	11	11	11	11	44
	4	2016	NAVY	130	0	130																	A -	-	-	-	-	-	-	-	130
	4	2017	NAVY	130	0	130																									130
	4	2018	NAVY	185	0	185																									185
	4	2019	NAVY	200	0	200																									200
✓	4	2020	NAVY	200	0	200																									200
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	0	109					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	9	9	9	55
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	0	125					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	85
	6	2016	NAVY	125	0	125																	A -	-	-	-	-	-	-	-	125
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
										Calendar Year 2015												Calendar Year 2016									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	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	2017	NAVY	125	0	125																									125
	6	2018	NAVY	180	0	180																									180
	6	2019	NAVY	200	0	200																									200
✓	6	2020	NAVY	220	0	220																									220
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	0	33														A -	-	-	-	-	-	-	-	-	-	-	33
	7	2017	NAVY	40	0	40																									40
	7	2018	NAVY	40	0	40																									40
	7	2019	NAVY	41	0	41																									41
✓	7	2020	NAVY	42	0	42																									42
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	0	24														A -	-	-	-	-	-	-	-	-	-	-	24
	8	2017	NAVY	21	0	21																									21
	8	2018	NAVY	20	0	20																									20
	8	2019	NAVY	25	0	25																									25
✓	8	2020	NAVY	25	0	25																									25
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	0	24														A -	-	-	-	-	-	-	-	-	-	-	24
	9	2017	NAVY	19	0	19																									19
	9	2018	NAVY	19	0	19																									19
	9	2019	NAVY	19	0	19																									19
✓	9	2020	NAVY	19	0	19																									19
7.1.4) Interlocks																															
	10	2016	NAVY	36	0	36														A -	-	-	-	-	-	-	-	-	-	-	36
	10	2017	NAVY	41	0	41																									41
	10	2018	NAVY	41	0	41																									41
	10	2019	NAVY	41	0	41																									41
✓	10	2020	NAVY	41	0	41																									41
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	12	0																									0
	1	2012	NAVY	24	24	0																									0
	1	2013	NAVY	24	16	8	2	2	2	2																					0
	1	2014	NAVY	24	0	24	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2									0
	1	2015	NAVY	22	0	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	6
	1	2016	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
4.1.1) Joint Fuze Sustainment [1]																															
	2	2019	NAVY	30	0	30																									30
✓	2	2020	NAVY	190	0	190																									190
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	50	0																									0
	3	2016	NAVY	51	5	46	5	5	4	4	4	4	4	4	4	4	4														0
	3	2017	NAVY	49	0	49					A -	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	4	5		0
	3	2018	NAVY	55	0	55																	A -	-	-	-	-	-	-	5	50
	3	2019	NAVY	62	0	62																									62
✓	3	2020	NAVY	62	0	62																									62
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	86	44	11	11	11	11																					0
	4	2016	NAVY	130	0	130	-	-	-	-	10	10	11	11	11	11	11	11	11	11	11	11									0
	4	2017	NAVY	130	0	130					A -	-	-	-	-	-	-	-	-	-	-	-	10	10	11	11	11	11	11	11	44
	4	2018	NAVY	185	0	185																	A -	-	-	-	-	-	-	-	185
	4	2019	NAVY	200	0	200																									200
✓	4	2020	NAVY	200	0	200																									200
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	54	55	9	9	9	9	9	10																			0
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	40	85	10	10	10	11	11	11	11	11																	0
	6	2016	NAVY	125	0	125	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	11	11	11	11	11					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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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	2017	NAVY	125	0	125					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	85
	6	2018	NAVY	180	0	180																	A -	-	-	-	-	-	-	180
	6	2019	NAVY	200	0	200																								200
✓	6	2020	NAVY	220	0	220																								220
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	0	33	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	3	3	3	3	3	3
	7	2017	NAVY	40	0	40		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
	7	2018	NAVY	40	0	40														A -	-	-	-	-	-	-	-	-	-	-	40
	7	2019	NAVY	41	0	41																									41
✓	7	2020	NAVY	42	0	42																									42
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	0	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	6
	8	2017	NAVY	21	0	21		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
	8	2018	NAVY	20	0	20														A -	-	-	-	-	-	-	-	-	-	-	20
	8	2019	NAVY	25	0	25																									25
✓	8	2020	NAVY	25	0	25																									25
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	0	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	8
	9	2017	NAVY	19	0	19		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
	9	2018	NAVY	19	0	19														A -	-	-	-	-	-	-	-	-	-	-	19
	9	2019	NAVY	19	0	19																									19
✓	9	2020	NAVY	19	0	19																									19
7.1.4) Interlocks																															
	10	2016	NAVY	36	0	36	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	3
	10	2017	NAVY	41	0	41		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
	10	2018	NAVY	41	0	41														A -	-	-	-	-	-	-	-	-	-	-	41
	10	2019	NAVY	41	0	41																									41
✓	10	2020	NAVY	41	0	41																									41
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	12	0																									0
	1	2012	NAVY	24	24	0																									0
	1	2013	NAVY	24	24	0																									0
	1	2014	NAVY	24	24	0																									0
	1	2015	NAVY	22	16	6	2	2	1	1																					0
	1	2016	NAVY	2	0	2	-	-	-	-	1	1																			0
4.1.1) Joint Fuze Sustainment [1]																															
	2	2019	NAVY	30	0	30				A -	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	12
✓	2	2020	NAVY	190	0	190													A -	-	-	-	-	-	-	-	-	-	-	-	190
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	50	0																									0
	3	2016	NAVY	51	51	0																									0
	3	2017	NAVY	49	49	0																									0
	3	2018	NAVY	55	5	50	5	5	5	5	5	5	4	4	4	4	4														0
	3	2019	NAVY	62	0	62					A -	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	6	6		0
✓	3	2020	NAVY	62	0	62																	A -	-	-	-	-	-	-	5	57
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	130	0																									0
	4	2016	NAVY	130	130	0																									0
	4	2017	NAVY	130	86	44	11	11	11	11																					0
	4	2018	NAVY	185	0	185	-	-	-	-	12	13	14	15	16	16	16	16	16	17	17	17									0
	4	2019	NAVY	200	0	200					A -	-	-	-	-	-	-	-	-	-	-	-	17	17	17	17	17	17	17	17	64
✓	4	2020	NAVY	200	0	200																	A -	-	-	-	-	-	-	-	200
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	109	0																									0
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	125	0																									0
	6	2016	NAVY	125	125	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019															Calendar Year 2020									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	6	2017	NAVY	125	40	85	10	10	10	11	11	11	11	11																	0
	6	2018	NAVY	180	0	180	-	-	-	-	-	-	-	-	15	15	15	15	15	15	15	15	15	15	15	15					0
	6	2019	NAVY	200	0	200					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	16	16	16	136
✓	6	2020	NAVY	220	0	220																	A -	-	-	-	-	-	-	-	220
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	30	3	3																								0
	7	2017	NAVY	40	0	40	-	3	3	3	3	3	3	3	3	4	4	4	4												0
	7	2018	NAVY	40	0	40	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	3	3	3	3	3	3	3	3
	7	2019	NAVY	41	0	41		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
✓	7	2020	NAVY	42	0	42														A -	-	-	-	-	-	-	-	-	-	-	42
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	18	6	2	2	2																						0
	8	2017	NAVY	21	0	21	-	-	-	2	2	2	2	2	2	2	2	2	1	1	1										0
	8	2018	NAVY	20	0	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	2	2	2	2	6
	8	2019	NAVY	25	0	25		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
✓	8	2020	NAVY	25	0	25														A -	-	-	-	-	-	-	-	-	-	-	25
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	16	8	2	2	2	2																					0
	9	2017	NAVY	19	0	19	-	-	-	-	2	2	2	2	2	2	2	1	1	1	1	1									0
	9	2018	NAVY	19	0	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	2	2	2	8
	9	2019	NAVY	19	0	19		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
✓	9	2020	NAVY	19	0	19														A -	-	-	-	-	-	-	-	-	-	-	19
7.1.4) Interlocks																															
	10	2016	NAVY	36	33	3	3																								0
	10	2017	NAVY	41	0	41	-	3	3	3	3	3	3	3	4	4	4	4	4												0
	10	2018	NAVY	41	0	41	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	3	3	3	3	3	3	3
	10	2019	NAVY	41	0	41		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
✓	10	2020	NAVY	41	0	41														A -	-	-	-	-	-	-	-	-	-	-	41
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

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	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	12	0																									0
	1	2012	NAVY	24	24	0																									0
	1	2013	NAVY	24	24	0																									0
	1	2014	NAVY	24	24	0																									0
	1	2015	NAVY	22	22	0																									0
	1	2016	NAVY	2	2	0																									0
4.1.1) Joint Fuze Sustainment [1]																															
	2	2019	NAVY	30	18	12	3	3	3	3																					0
✓	2	2020	NAVY	190	0	190	-	15	15	16	16	16	16	16	16	16	16	16	16												0
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	50	0																									0
	3	2016	NAVY	51	51	0																									0
	3	2017	NAVY	49	49	0																									0
	3	2018	NAVY	55	55	0																									0
	3	2019	NAVY	62	62	0																									0
✓	3	2020	NAVY	62	5	57	5	5	5	5	5	5	5	5	5	6	6														0
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	130	0																									0
	4	2016	NAVY	130	130	0																									0
	4	2017	NAVY	130	130	0																									0
	4	2018	NAVY	185	185	0																									0
	4	2019	NAVY	200	136	64	16	16	16	16																					0
✓	4	2020	NAVY	200	0	200	-	-	-	-	16	16	16	16	17	17	17	17	17	17	17	17									0
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	109	0																									0
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	125	0																									0
	6	2016	NAVY	125	125	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2 | **P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods | **Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

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	
	6	2017	NAVY	125	125	0																									0
	6	2018	NAVY	180	180	0																									0
	6	2019	NAVY	200	64	136	17	17	17	17	17	17	17	17																	0
✓	6	2020	NAVY	220	0	220	-	-	-	-	-	-	-	-	18	18	18	18	18	18	18	18	19	19	19	19					0
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	33	0																									0
	7	2017	NAVY	40	40	0																									0
	7	2018	NAVY	40	37	3	3																								0
	7	2019	NAVY	41	0	41	-	3	3	3	3	3	3	3	4	4	4	4	4												0
✓	7	2020	NAVY	42	0	42	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	3	3	3	3	3	3
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	24	0																									0
	8	2017	NAVY	21	21	0																									0
	8	2018	NAVY	20	14	6	2	2	2																						0
	8	2019	NAVY	25	0	25	-	-	-	2	2	2	2	2	2	2	2	2	2	2	3										0
✓	8	2020	NAVY	25	0	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	7
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	24	0																									0
	9	2017	NAVY	19	19	0																									0
	9	2018	NAVY	19	11	8	2	2	2	2																					0
	9	2019	NAVY	19	0	19	-	-	-	-	2	2	2	2	2	2	2	1	1	1	1	1									0
✓	9	2020	NAVY	19	0	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	2	2	2	8
7.1.4) Interlocks																															
	10	2016	NAVY	36	36	0																									0
	10	2017	NAVY	41	41	0																									0
	10	2018	NAVY	41	38	3	3																								0
	10	2019	NAVY	41	0	41	-	3	3	3	3	3	3	3	4	4	4	4	4												0
✓	10	2020	NAVY	41	0	41	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	3	3	3	3	3	3	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

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	
1.1.2) SPALT Kits																															
	1	2011	NAVY	12	12	0																									0
	1	2012	NAVY	24	24	0																									0
	1	2013	NAVY	24	24	0																									0
	1	2014	NAVY	24	24	0																									0
	1	2015	NAVY	22	22	0																									0
	1	2016	NAVY	2	2	0																									0
4.1.1) Joint Fuze Sustainment (1)																															
	2	2019	NAVY	30	30	0																									0
✓	2	2020	NAVY	190	190	0																									0
6.1.1) Circuit Card Assemblies (CCA's)																															
Prior Years Deliveries: 163																															
	3	2015	NAVY	50	50	0																									0
	3	2016	NAVY	51	51	0																									0
	3	2017	NAVY	49	49	0																									0
	3	2018	NAVY	55	55	0																									0
	3	2019	NAVY	62	62	0																									0
✓	3	2020	NAVY	62	62	0																									0
6.1.2) Interferometric Fiber-Optic Gyro (IFOG)																															
Prior Years Deliveries: 341																															
	4	2015	NAVY	130	130	0																									0
	4	2016	NAVY	130	130	0																									0
	4	2017	NAVY	130	130	0																									0
	4	2018	NAVY	185	185	0																									0
	4	2019	NAVY	200	200	0																									0
✓	4	2020	NAVY	200	200	0																									0
6.1.4) MK6 LE Electronic Piece Parts (LEEP Set)																															
Prior Years Deliveries: 445																															
	5	2015	NAVY	109	109	0																									0
6.1.5) Guidance Accelerometer Sensors (PIGA)																															
Prior Years Deliveries: 300																															
	6	2015	NAVY	125	125	0																									0
	6	2016	NAVY	125	125	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

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	
	6	2017	NAVY	125	125	0																									0
	6	2018	NAVY	180	180	0																									0
	6	2019	NAVY	200	200	0																									0
✓	6	2020	NAVY	220	220	0																									0
7.1.1) Flight Control Electronic Assembly (FCEA)																															
	7	2016	NAVY	33	33	0																									0
	7	2017	NAVY	40	40	0																									0
	7	2018	NAVY	40	40	0																									0
	7	2019	NAVY	41	41	0																									0
✓	7	2020	NAVY	42	39	3	3																								0
7.1.2) Missile Inverter																															
	8	2016	NAVY	24	24	0																									0
	8	2017	NAVY	21	21	0																									0
	8	2018	NAVY	20	20	0																									0
	8	2019	NAVY	25	25	0																									0
✓	8	2020	NAVY	25	18	7	2	2	3																						0
7.1.3) Command Sequencer																															
	9	2016	NAVY	24	24	0																									0
	9	2017	NAVY	19	19	0																									0
	9	2018	NAVY	19	19	0																									0
	9	2019	NAVY	19	19	0																									0
✓	9	2020	NAVY	19	11	8	2	2	2	2																					0
7.1.4) Interlocks																															
	10	2016	NAVY	36	36	0																									0
	10	2017	NAVY	41	41	0																									0
	10	2018	NAVY	41	41	0																									0
	10	2019	NAVY	41	41	0																									0
✓	10	2020	NAVY	41	38	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 1 / TRIDENT II Mods - D5 Life Extension

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 - Sunnyvale, CA	12	12	24	9	1	37	38	9	1	37	38
2	Department of Energy (DOE) - Kansas City	30	150	240	9	1	12	13	9	1	12	13
3	Charles Stark Draper Laboratory, INC - Cambridge MA	32	50	83	9	4	7	11	9	4	7	11
4	Charles Stark Draper Laboratory, INC - Cambridge MA	120	144	336	9	4	12	16	9	4	12	16
5	Charles Stark Draper Laboratory, INC - Cambridge MA	15	115	130	9	4	12	16	9	4	12	16
6	Charles Stark Draper Laboratory, INC - Cambridge MA	96	108	288	9	4	16	20	9	4	16	20
7	Lockheed Martin - Sunnyvale, CA	12	36	72	9	1	24	25	9	1	24	25
8	Lockheed Martin - Sunnyvale, CA	12	36	48	9	1	26	27	9	1	26	27
9	LOCKHEED MARTIN - Sunnyvale, CA	12	36	72	9	1	27	28	9	1	27	28
10	LOCKHEED MARTIN - Sunnyvale, CA	12	36	72	9	1	24	25	9	1	24	25

"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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	4,685.792	489.144	480.210	0.000	529.729	529.729
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	4,685.792	489.144	480.210	0.000	529.729	529.729
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**4,685.792**	**489.144**	**480.210**	**0.000**	**529.729**	**529.729**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost *($ 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)*
Support - Support Cost																		
1.1) PIGA	-	-	99.452	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.2) SWFLANT Production Support	-	-	56.450	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.3) Warhead Components (3)	-	-	1,417.352	-	-	81.352	-	-	80.126	-	-	0.000	-	-	84.271	-	-	84.271
1.4) Shape Stable Nose Tip (SSNT) (4)	-	-	0.000	-	-	0.000	-	-	8.800	-	-	0.000	-	-	11.267	-	-	11.267
1.5) Tooling, Test/ Support Equipment (5)	-	-	415.095	-	-	48.678	-	-	47.972	-	-	0.000	-	-	71.002	-	-	71.002
1.6) Containers	-	-	3.575	-	-	0.100	-	-	0.100	-	-	0.000	-	-	0.100	-	-	0.100
1.7) System Integration & Planning	-	-	182.262	-	-	16.022	-	-	16.214	-	-	0.000	-	-	16.643	-	-	16.643
1.8) Supportability Mods/ SPALT Insertion	-	-	463.629	-	-	34.851	-	-	35.881	-	-	0.000	-	-	36.598	-	-	36.598
1.9) Guidance Parts Procurement	-	-	57.123	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.10) SWFPAC Production Support	-	-	48.050	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.11) EOP Missile and Guidance Costs (6)	-	-	31.804	-	-	4.030	-	-	0.000	-	-	0.000	-	-	2.273	-	-	2.273
Subtotal: Support - Support Cost	***-***	***-***	***2,774.792***	***-***	***-***	***185.033***	***-***	***-***	***189.093***	***-***	***-***	***0.000***	***-***	***-***	***222.154***	***-***	***-***	***222.154***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	P-1 Line Item Number / Title: 1250 / TRIDENT II Mods	Item Number / Title [DODIC]: 2 / TRIDENT II Mods -Operating and Support Costs
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Support - Solid Rocket Motors and PBCS Cost																		
2.1) Solid Rocket Motor's(†)	16,210.592	76	1,232.005	16,994.571	12	203.935	17,317.500	12	207.810	-	-	0.000	17,646.500	12	211.758	17,646.500	12	211.758
2.2) Post Boost Control System (PBCS)(†)	1,981.750	76	150.613	2,050.857	14	28.712	2,089.786	14	29.257	-	-	0.000	2,129.500	14	29.813	2,129.500	14	29.813
2.3) HMX	-	-	130.816	-	-	11.274	-	-	11.488	-	-	0.000	-	-	11.707	-	-	11.707
2.4) Other (Tooling, Storage, PET, Stat Fire etc.) (7)	-	-	313.166	-	-	52.890	-	-	41.562	-	-	0.000	-	-	54.297	-	-	54.297
Subtotal: Support - Solid Rocket Motors and PBCS Cost	***-***	***-***	***1,826.600***	***-***	***-***	***296.811***	***-***	***-***	***290.117***	***-***	***-***	***0.000***	***-***	***-***	***307.575***	***-***	***-***	***307.575***
Support - New Start Cost																		
3.1) Aerospike Protective Cap	-	-	0.100	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.2) 3rd Stage Motor Support	-	-	3.200	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.3) Bare Missile Bridge	-	-	17.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.4) 1st and 2nd Stage Motor Chocks	-	-	21.500	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.5) Motor Chock Storage	-	-	11.100	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.6) 3rd Stage Dollies	-	-	2.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.7) Additional Movement/Transport/ Storage/Equip	-	-	29.100	-	-	7.300	-	-	1.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - New Start Cost	***-***	***-***	***84.400***	***-***	***-***	***7.300***	***-***	***-***	***1.000***	***-***	***-***	***0.000***	***-***	***-***	***0.000***	***-***	***-***	***0.000***
Gross/Weapon System Cost	**-**	**-**	**4,685.792**	**-**	**-**	**489.144**	**-**	**-**	**480.210**	**-**	**-**	**0.000**	**-**	**-**	**529.729**	**-**	**-**	**529.729**

(†) indicates the presence of a P-5a

Footnotes:

(3) An increase in Warhead Components for 4 additional Joint Test Assemblies (JTA's) to support Warhead Retrofit Evaluation System Testing.

(4) An increase in Shape Stable Nose Tip (SSNT) to support the first flight test which is necessary to evaluate the performance of the developmental hardware of the SSNT flight test body.

(5) An increase in Tooling Test Support Equipment including but not limited to: -Missile Service Unit (MSU) Refresh which consists of procurement, production and Strategic Weapon Facility (SWF) integration support of 3 units. The MSU allows for reconfiguration of the re-entry body on the submarine itself for flight testing (missile doesn't have to be offloaded off the submarine). -The procurement of three Kneel Down

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Transporters (KDT's) which are required to transport all up missiles and 1st stage motors. Both the missile and the 1st stage motors require special vehicles to transport them from various buildings/locations on the Strategic Weapon's Facilities (SWF's) due to their weight. -Test Missile Kit System Acceptance Checkout Equipment (KSACE) refresh. The KSACE performs production acceptance testing of TMK's prior to test flights. The refresh also includes all spare parts for sustainment of the test console. -Command Sequencer and Power Distribution Unit Test console refresh. This test console performs production acceptance testing on both the Command Sequencers (CS) and the Power Distribution Unit's (PDU). The CS is one of the 4 Missile Electronics Packages being refreshed for D5 Life Extension and The PDU distributes power from one single battery to all the electronics on the Missile.

(6) An increase in End of Production Missile and Guidance Costs for initial shutdown efforts associated with full Guidance production line shutdown commencing in FY 2021.

(7) An increase in Rocket Motor and PBCS Other Costs for: -2 Additional Performance Evaluation Tests - The FY 2019 funding profile was lower due to the increased UK procurement profile and the UK being responsible for a higher portion of shared costs, however in FY 2020 the UK procurement profile is reduced and the US resumes the normal level of shared costs.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	P-1 Line Item Number / Title: 1250 / TRIDENT II Mods	Item Number / Title [DODIC]: 2 / TRIDENT II Mods -Operating and Support Costs

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.1) Solid Rocket Motor's(†)		2012	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Dec 2011	Feb 2015	12	0.000	Y		
2.1) Solid Rocket Motor's(†)		2013	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Dec 2012	Feb 2016	12	0.000	Y		
2.1) Solid Rocket Motor's(†)		2014	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2013	Feb 2017	12	0.000	Y		
2.1) Solid Rocket Motor's(†)		2015	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2014	Feb 2018	12	16,066.750	Y		
2.1) Solid Rocket Motor's(†)		2016	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Feb 2019	12	16,366.750	Y		
2.1) Solid Rocket Motor's(†)		2017	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2016	Feb 2020	12	16,677.750	Y		
2.1) Solid Rocket Motor's(†)		2018	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2017	Feb 2021	12	16,994.571	Y		
2.1) Solid Rocket Motor's(†)		2019	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2018	Feb 2022	12	17,317.500	Y		
2.1) Solid Rocket Motor's(†)	✓	2020	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2019	Feb 2023	12	17,646.500	Y		
2.2) Post Boost Control System (PBCS)(†)		2015	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2014	Feb 2018	12	1,976.167	Y		
2.2) Post Boost Control System (PBCS)(†)		2016	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2015	Feb 2019	12	1,975.083	Y		
2.2) Post Boost Control System (PBCS)(†)		2017	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2016	Feb 2020	12	2,012.583	Y		
2.2) Post Boost Control System (PBCS)(†)		2018	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2017	Feb 2021	14	2,050.857	Y		
2.2) Post Boost Control System (PBCS)(†)		2019	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2018	Feb 2022	14	2,089.786	Y		
2.2) Post Boost Control System (PBCS)(†)	✓	2020	Lockheed Martin / Sunnyvale, CA	Various	SSP - Washington Navy Yard	Nov 2019	Feb 2023	14	2,129.500	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

Cost Elements (Units in Each)							Fiscal Year 2012												Fiscal Year 2013												BALANCE
							Calendar Year 2012												Calendar Year 2013												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	0	12			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2013	NAVY	12	0	12															A -	-	-	-	-	-	-	-	-	-	12
	1	2014	NAVY	12	0	12																									12
	1	2015	NAVY	12	0	12																									12
	1	2016	NAVY	12	0	12																									12
	1	2017	NAVY	12	0	12																									12
	1	2018	NAVY	12	0	12																									12
	1	2019	NAVY	12	0	12																									12
✓	1	2020	NAVY	12	0	12																									12
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	0	12																									12
	2	2016	NAVY	12	0	12																									12
	2	2017	NAVY	12	0	12																									12
	2	2018	NAVY	14	0	14																									14
	2	2019	NAVY	14	0	14																									14
✓	2	2020	NAVY	14	0	14																									14
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

Cost Elements (Units in Each)							Fiscal Year 2014												Fiscal Year 2015												BALANCE
							Calendar Year 2014												Calendar Year 2015												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
	1	2013	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2014	NAVY	12	0	12		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2015	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	12
	1	2016	NAVY	12	0	12																									12
	1	2017	NAVY	12	0	12																									12
	1	2018	NAVY	12	0	12																									12
	1	2019	NAVY	12	0	12																									12
✓	1	2020	NAVY	12	0	12																									12
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	12
	2	2016	NAVY	12	0	12																									12
	2	2017	NAVY	12	0	12																									12
	2	2018	NAVY	14	0	14																									14
	2	2019	NAVY	14	0	14																									14
✓	2	2020	NAVY	14	0	14																									14
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
							Calendar Year 2016												Calendar Year 2017												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	8	4	1	1	1	1																					0
	1	2013	NAVY	12	0	12	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1									0
	1	2014	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
	1	2015	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2016	NAVY	12	0	12		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2017	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	12
	1	2018	NAVY	12	0	12																									12
	1	2019	NAVY	12	0	12																									12
✓	1	2020	NAVY	12	0	12																									12
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	2	2016	NAVY	12	0	12		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	2	2017	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	12
	2	2018	NAVY	14	0	14																									14
	2	2019	NAVY	14	0	14																									14
✓	2	2020	NAVY	14	0	14																									14
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	12	0																									0
	1	2013	NAVY	12	12	0																									0
	1	2014	NAVY	12	8	4	1	1	1	1																					0
	1	2015	NAVY	12	0	12	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1									0
	1	2016	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
	1	2017	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2018	NAVY	12	0	12		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	1	2019	NAVY	12	0	12														A -	-	-	-	-	-	-	-	-	-	-	12
✓	1	2020	NAVY	12	0	12																									12
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	0	12	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1									0
	2	2016	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
	2	2017	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	2	2018	NAVY	14	0	14		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
	2	2019	NAVY	14	0	14														A -	-	-	-	-	-	-	-	-	-	-	14
✓	2	2020	NAVY	14	0	14																									14
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	12	0																									0
	1	2013	NAVY	12	12	0																									0
	1	2014	NAVY	12	12	0																									0
	1	2015	NAVY	12	12	0																									0
	1	2016	NAVY	12	8	4	1	1	1	1																					0
	1	2017	NAVY	12	0	12	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1									0
	1	2018	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
	1	2019	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
✓	1	2020	NAVY	12	0	12		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	12	0																									0
	2	2016	NAVY	12	8	4	1	1	1	1																					0
	2	2017	NAVY	12	0	12	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1									0
	2	2018	NAVY	14	0	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	6
	2	2019	NAVY	14	0	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
✓	2	2020	NAVY	14	0	14		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	12	0																									0
	1	2013	NAVY	12	12	0																									0
	1	2014	NAVY	12	12	0																									0
	1	2015	NAVY	12	12	0																									0
	1	2016	NAVY	12	12	0																									0
	1	2017	NAVY	12	12	0																									0
	1	2018	NAVY	12	8	4	1	1	1	1																					0
	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	4
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	12	0																									0
	2	2016	NAVY	12	12	0																									0
	2	2017	NAVY	12	12	0																									0
	2	2018	NAVY	14	8	6	1	1	2	2																					0
	2	2019	NAVY	14	0	14	-	-	-	-	2	2	1	1	1	1	1	1	1	1	1	1									0
✓	2	2020	NAVY	14	0	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

Cost Elements (Units in Each)							Fiscal Year 2024												Fiscal Year 2025												BALANCE
							Calendar Year 2024												Calendar Year 2025												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2023	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	
2.1) Solid Rocket Motor's																															
Prior Years Deliveries: 4																															
	1	2012	NAVY	12	12	0																									0
	1	2013	NAVY	12	12	0																									0
	1	2014	NAVY	12	12	0																									0
	1	2015	NAVY	12	12	0																									0
	1	2016	NAVY	12	12	0																									0
	1	2017	NAVY	12	12	0																									0
	1	2018	NAVY	12	12	0																									0
	1	2019	NAVY	12	12	0																									0
✓	1	2020	NAVY	12	8	4	1	1	1	1																					0
2.2) Post Boost Control System (PBCS)																															
Prior Years Deliveries: 40																															
	2	2015	NAVY	12	12	0																									0
	2	2016	NAVY	12	12	0																									0
	2	2017	NAVY	12	12	0																									0
	2	2018	NAVY	14	14	0																									0
	2	2019	NAVY	14	14	0																									0
✓	2	2020	NAVY	14	8	6	1	1	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 2	**P-1 Line Item Number / Title:** 1250 / TRIDENT II Mods	**Item Number / Title [DODIC]:** 2 / TRIDENT II Mods -Operating and Support Costs

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 - Sunnyvale, CA	12	14	18	9	1	37	38	9	1	37	38
2	Lockheed Martin - Sunnyvale, CA	12	14	18	9	1	37	38	9	1	37	38

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 01: Ballistic Missiles / BSA 3: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 1350 / Missile Industrial Facilities

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	31.996	7.086	6.998	0.000	7.142	7.142	7.282	7.426	7.575	7.726	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	31.996	7.086	6.998	0.000	7.142	7.142	7.282	7.426	7.575	7.726	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**31.996**	**7.086**	**6.998**	**0.000**	**7.142**	**7.142**	**7.282**	**7.426**	**7.575**	**7.726**	**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:

FY 2020 funding totals include $0.0M for Base and $7.142M for Overseas Contingency Operations (OCO); of which $7.142M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Funding for Missile Industrial Facilities provides for capital maintenance projects at Navy-owned Naval Industrial Reserve Ordnance Plants (NIROPS) at Sunnyvale and Santa Cruz, California; Bacchus, Utah; Denver, Colorado and Space Coast Florida in support of the Fleet Ballistic Missile program. The Bacchus, Utah, ATK facility alone consists of 583 acres, over 130 buildings and over 13 miles of road. The Sunnyvale, California facility consists of 49 acres of land and 10 buildings and the Santa Cruz, California facility consists of 271 acres of land and 29 buildings.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 01: Ballistic Missiles / BSA 3: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 1350 / Missile Industrial Facilities

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Missile Industrial Facilities				- / 31.996	- / 7.086	- / 6.998	- / 0.000	- / 7.142	- / 7.142
P-40	**Total Gross/Weapon System Cost**				**- / 31.996**	**- / 7.086**	**- / 6.998**	**- / 0.000**	**- / 7.142**	**- / 7.142**

*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:

As NIROP buildings are vital to D5 motor production, they must be maintained in an operational state until the D5 missile retirement. Most buildings are already over 50 years old and have exceeded their useful life. Safety related maintenance projects were originally deferred when the Department did not have a program of record to remotor the D5 missile to support its extended deployment. Subsequently, the Department approved and funded the re-motoring of D5 missiles. Additional repairs and upgrades are necessary to ensure NIROP buildings are properly maintained because of this significant extension of motor procurement. Incidents that stress the need for additional funds include: a leak in the fire branch line which left a few energetic buildings without fire protection, failure of an exhaust fan which halted operations until the unit was replaced, failure of a pneumatic valve which halted HMX production, and a failure in the liquid nitrogen pump system which shut down hardware testing. Projects planned in FY 2020 include modifications and rehabilitation of civil works, non-severable equipment, and real property. Among these projects are roof replacements, floor replacements, power line refurbishments, lighting system replacements in 24 buildings, upgrades and replacements to boiler and electrical subsystems, water supply replacements and general facilities maintenance.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 01 / 3	**P-1 Line Item Number / Title:** 1350 / Missile Industrial Facilities	**Item Number / Title [DODIC]:** 1 / Missile Industrial Facilities
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	31.996	7.086	6.998	0.000	7.142	7.142
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	31.996	7.086	6.998	0.000	7.142	7.142
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**31.996**	**7.086**	**6.998**	**0.000**	**7.142**	**7.142**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) Capital Maintenance	-	-	31.996	-	-	7.086	-	-	6.998	-	-	0.000	-	-	7.142	-	-	7.142
Subtotal: Recurring Cost	-	-	*31.996*	-	-	*7.086*	-	-	*6.998*	-	-	*0.000*	-	-	*7.142*	-	-	*7.142*
Subtotal: Hardware Cost	**-**	**-**	***31.996***	**-**	**-**	***7.086***	**-**	**-**	***6.998***	**-**	**-**	***0.000***	**-**	**-**	***7.142***	**-**	**-**	***7.142***
Gross/Weapon System Cost	**-**	**-**	**31.996**	**-**	**-**	**7.086**	**-**	**-**	**6.998**	**-**	**-**	**0.000**	**-**	**-**	**7.142**	**-**	**-**	**7.142**

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 1: Strategic Missiles	**P-1 Line Item Number / Title:** 2101 / Tomahawk

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

Line Item MDAP/MAIS Code: 289

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	8,529	100	-	-	90	90	90	-	-	-	-	8,809
Gross/Weapon System Cost *($ in Millions)*	13,452.125	187.354	98.570	0.000	386.730	386.730	373.963	220.141	317.815	280.825	3,630.706	18,948.229
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	13,452.125	187.354	98.570	0.000	386.730	386.730	373.963	220.141	317.815	280.825	3,630.706	18,948.229
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**13,452.125**	**187.354**	**98.570**	**0.000**	**386.730**	**386.730**	**373.963**	**220.141**	**317.815**	**280.825**	**3,630.706**	**18,948.229**
(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 Thousands)*	1,188.144	1,432.700	-	-	1,901.722	1,901.722	1,951.344	-	-	-	-	1,206.009
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $386.73M for Overseas Contingency Operations (OCO); of which $386.73M and 90 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Block V is a modernized TACTOM missile which includes Navigation Communications (NAV/COMMs) upgrade.

Tomahawk provides an attack capability against fixed and mobile/moving targets, and can be launched from both surface ships (RGM) and submarines (UGM). Tomahawk consists of the following variants: (1) RGM/UGM-109C, Land Attack Conventional; (2) RGM/UGM-109D, Land Attack Submunition Dispenser; (3) RGM/UGM-109E, Tactical Tomahawk.

The Block IV/V Tactical Tomahawk (TACTOM RGM/UGM-109E) preserves Tomahawk's long-range precision-strike capability while significantly increasing responsiveness and flexibility. TACTOM is capable of in-flight retargeting, the ability to loiter over the battlefield, in-flight missile health and status monitoring, and battle damage indication. Other Tomahawk Weapon System functionality includes rapid mission planning and execution via Global Positioning System (GPS) onboard the launch platform and improved anti-jam GPS.

Characteristics and dimensions (approximate):
Weight (with booster and capsule) (UGM-109): 4,300 pounds
Weight (with booster and canister) (RGM-109): 4,300 pounds
Length (with booster): 20.5 feet
Wing Span: 8.6 feet
Cruise Speed: High Subsonic

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 1: Strategic Missiles	**P-1 Line Item Number / Title:** 2101 / Tomahawk

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

Line Item MDAP/MAIS Code: 289

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Tomahawk	P-5a, P-21			8,529 / 13,452.125	100 / 157.311	- / 20.164	- / 0.000	90 / 204.716	90 / 204.716
P-3a	1 / TACTOM NAV/COMMs Modernization and Recertification Kits (Increase Capability and Maintain Reliability)				- / 0.000	- / 30.043	- / 78.406	- / 0.000	- / 182.014	- / 182.014
P-40	**Total Gross/Weapon System Cost**				**8,529 / 13,452.125**	**100 / 187.354**	**- / 98.570**	**- / 0.000**	**90 / 386.730**	**90 / 386.730**

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Tomahawk	P-5a, P-21			- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / TACTOM NAV/COMMs Modernization and Recertification Kits (Increase Capability and Maintain Reliability)				- / 166.130	- / 212.062	- / 305.055	- / 257.751	- / 3,270.533	- / 4,501.994
P-40	**Total Gross/Weapon System Cost**				**90 / 373.963**	**- / 220.141**	**- / 317.815**	**- / 280.825**	**- / 3,630.706**	**8,809 / 18,948.229**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:

FY 2020 funding supports the procurement of 90 new BLOCK V TACTOM and the start of the Recertification phase of the program with the induction of Block IV assets for modification into the Block V configuration with the installation of 112 NAVIGATION/COMMUNICATIONS (NAV/COMMs) Kits, formerly known as Anti-Access Area Denial (A2AD) modernization kits. Funding also supports the increased procurement of TACTOM NAV/COMMs modernization kits, from 112 in FY 2019 to 156 in FY 2020, support equipment and associated support.

FY 2020 includes the procurement of Maritime Strike Tomahawk (MST) as a rapid deployment capability which includes seeker kit hardware, assemblies/subassemblies, packaging and storage.

The Next Generation Land Attack Weapon (NGLAW) Analysis of Alternatives (AoA) findings have prompted the Navy to restart the TACTOM Production line in FY 2020. This strategy change necessitates the need to leverage budgeted Production Shutdown funds for the purpose of Production Transition, enabling the transformation of the TACTOM line, tooling, test equipment, and System Integration Labs for concurrent production of TACTOM missiles and TACTOM missile re-certifications. The Navy will conduct further analysis to determine if TACTOM production will continue beyond FY 2021.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	P-1 Line Item Number / Title: 2101 / Tomahawk	Item Number / Title [DODIC]: 1 / Tomahawk
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	8,529	100	-	-	90	90
Gross/Weapon System Cost *($ in Millions)*	13,452.125	157.311	20.164	0.000	204.716	204.716
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	13,452.125	157.311	20.164	0.000	204.716	204.716
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**13,452.125**	**157.311**	**20.164**	**0.000**	**204.716**	**204.716**
(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)*	1,577.222	1,573.110	-	-	2,274.622	2,274.622

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - TOTAL HARDWARE - MISSILE Cost																		
Recurring Cost																		
1.1.1) TACTICAL TOMAHAWK (VLS)(†) (1)	912.611	3,186	2,907.579	1,432.696	100	143.270	-	-	0.000	-	-	0.000	1,901.722	90	171.155	1,901.722	90	171.155
1.1.2) TACTICAL TOMAHAWK (CLS)	883.216	1,078	952.107	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) TACTICAL TOMAHAWK (TTL)	1,088.385	65	70.745	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) REMANUFACTURE (BLOCK III)	-	-	592.217	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) PREVIOUS TOMAHAWK PRODUCTION	1,335.961	4,200	5,611.035	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*10,133.683*	-	-	*143.270*	-	-	*0.000*	-	-	*0.000*	-	-	*171.155*	-	-	*171.155*
Subtotal: Flyaway - TOTAL HARDWARE - MISSILE Cost	**-**	**-**	***10,133.683***	**-**	**-**	***143.270***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***171.155***	**-**	**-**	***171.155***
Hardware - TOTAL HARDWARE - MISSILE - OTHER COSTS Cost																		
Recurring Cost																		
2.1.1) CCLS CAPSULE RETRO KIT	-	-	26.300	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	P-1 Line Item Number / Title: 2101 / Tomahawk	Item Number / Title [DODIC]: 1 / Tomahawk
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
2.1.2) CCLS SUBMARINE CAPSULES	352.786	1,078	380.303	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
2.1.3) MK 14 CANISTERS(†) (2)	77.809	3,186	247.901	32.955	100	3.295	-	-	0.000	-	-	0.000	137.089	90	12.338	137.089	90	12.338
2.1.4) OBSOLESCENCE (3)	-	-	59.743	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.460	-	-	2.460
2.1.6) PRODUCTION LINE TRANSITION (4)	-	-	0.000	-	-	0.000	-	-	20.164	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*714.247*	-	-	*3.295*	-	-	*20.164*	-	-	*0.000*	-	-	*14.798*	-	-	*14.798*
Subtotal: Hardware - TOTAL HARDWARE - MISSILE - OTHER COSTS Cost	**-**	**-**	***714.247***	**-**	**-**	***3.295***	**-**	**-**	***20.164***	**-**	**-**	***0.000***	**-**	**-**	***14.798***	**-**	**-**	***14.798***
Support - TOTAL PROCUREMENT SUPPORT - MISSILE Cost																		
3.1) PRODUCT IMPROVEMENT	-	-	435.331	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.2) PRODUCTION ENGINEERING SUPPORT (5)	-	-	786.761	-	-	3.867	-	-	0.000	-	-	0.000	-	-	8.415	-	-	8.415
3.3) SPECIAL TOOLING & TEST EQUIPMENT (ST & TE)	-	-	38.090	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.4) SYSTEMS ENGINEERING (6)	-	-	425.241	-	-	3.503	-	-	0.000	-	-	0.000	-	-	6.885	-	-	6.885
Subtotal: Support - TOTAL PROCUREMENT SUPPORT - MISSILE Cost	**-**	**-**	***1,685.423***	**-**	**-**	***7.370***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***15.300***	**-**	**-**	***15.300***
Support - TOTAL FLEET SUPPORT - MISSILE Cost																		
4.1) DOCUMENTATION	-	-	32.257	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.2) SUPPORT EQUIPMENT (7)	-	-	230.000	-	-	3.376	-	-	0.000	-	-	0.000	-	-	3.463	-	-	3.463
4.3) THEATER MISSION PLANNING CENTER	-	-	255.044	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.4) TRAINING EQUIPMENT	-	-	87.953	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
5.1) EOQ	-	-	50.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
5.2) EOQ Credit	-	-	-50.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - TOTAL FLEET SUPPORT - MISSILE Cost	**-**	**-**	***605.254***	**-**	**-**	***3.376***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***3.463***	**-**	**-**	***3.463***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	P-1 Line Item Number / Title: 2101 / Tomahawk	Item Number / Title [DODIC]: 1 / Tomahawk
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Support - TOTAL SPARES & REPAIR PARTS Cost																		
6.1) TOMAHAWK INITIAL SPARES	-	-	313.518	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - TOTAL SPARES & REPAIR PARTS Cost	***-***	***-***	***313.518***	***-***	***-***	***0.000***	***-***	***-***	***0.000***	***-***	***-***	***0.000***	***-***	***-***	***0.000***	***-***	***-***	***0.000***
Gross/Weapon System Cost	**1,577.222**	**8,529**	**13,452.125**	**1,573.110**	**100**	**157.311**	**-**	**-**	**20.164**	**-**	**-**	**0.000**	**2,274.622**	**90**	**204.716**	**2,274.622**	**90**	**204.716**

(†) indicates the presence of a P-5a

Footnotes:

(1) FY 2018 funding and quantity reflect the Enacted amounts. Unit Cost increase from FY 2018 to FY 2020 due to capability upgrades associated with Block V configuration.

(2) FY 2018 funding and quantity reflect the Enacted amounts. Unit cost increase from FY 2018 to FY 2020 due to buying canisters directly from the Vendor in FY 2020. FY 2018 canisters were refurbished from expended canisters and purchased parts from qualified supplier.

(3) Funding reflects required Production obsolescence mitigation including avionics, electrical, and structures bill of material development, and obsolescence ECP forecasting in order to support the extended end of service date.

(4) Production Line Shutdown cost element has been renamed to Production Line Transition. Name change is due to The Next Generation Land Attack Weapon (NGLAW) Analysis of Alternatives (AoA) findings that have prompted the Navy to restart the TACTOM Production line starting in FY 2020. This strategy change necessitates the need to leverage budgeted Production Shutdown funds for the purpose of Production Transition, enabling the transformation of the TACTOM production line, tooling, test equipment, and System Integration Labs for concurrent production of TACTOM missiles and TACTOM missile re-certifications starting in FY 2020 and continuing in FY 2021. Production Line Transition costs totaling $20.164M in FY 2019 is required for the transitioning of the Tactical Tomahawk from the production to the recertification line. It will include disposition of tooling at Raytheon Missile Systems, and multiple vendors including primary vendors integral to the recertification of the TACTOM. Capital improvements transitioning the System Integration Lab (SIL) and Production Floor for concurrent Production/Recertification starting in FY 2020.

(5) Production Engineering Support is required in FY 2020 to support the delivery of missiles across the funded delivery period as well as additional support required for Block V related capabilities. Efforts include warhead energetics, airframe engineering competencies, Production Acceptance Testing integrated logistics support.

(6) Systems Engineering Support is required in FY 2020 to support the delivery of missiles across the funded delivery period as well as additional support required for Block V related capabilities. Efforts include warhead energetics, airframe engineering competencies, Production Acceptance Testing integrated logistics support.

(7) Support Equipment in FY 2020 is for the procurement of Mid-Body Range Safety System (MRSS) required to conduct TACTOM BLK IV/V flight testing, and associated test equipment obsolescence and cyber security upgrades necessary for software development, MRSS kit production and TACTOM BLK IV/V missile conversion into a flight test missile. Increases in FY 2020 are due to the requirement to maintain Flight Test tempo that is supportive of capability development, missile inventory surveillance, fleet proficiency, and tactics development.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	P-1 Line Item Number / Title: 2101 / Tomahawk	Item Number / Title [DODIC]: 1 / Tomahawk

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) TACTICAL TOMAHAWK (VLS)(†)		2016	Raytheon Missile System / Tucson AZ	SS / FP	NAVAIR	Dec 2016	Dec 2017	149	1,093.617	Y		Jul 2015
1.1.1) TACTICAL TOMAHAWK (VLS)(†)		2017	Raytheon Missile System / Tucson AZ	SS / FP	NAVAIR	Sep 2017	Sep 2018	196	1,141.403	Y		Jul 2016
1.1.1) TACTICAL TOMAHAWK (VLS)(†)		2018	Raytheon Missile System / Tucson AZ	SS / FP	NAVAIR	Apr 2018	Jun 2019	44	1,432.696	Y		Jul 2017
1.1.1) TACTICAL TOMAHAWK (VLS)(†)	✓	2018	Raytheon Missile System / Tucson AZ	SS / FP	NAVAIR	Apr 2018	Jun 2019	56	1,432.696	Y		Jul 2017
1.1.1) TACTICAL TOMAHAWK (VLS)(†)	✓	2020	Raytheon Missile System / Tucson AZ	SS / FP	NAVAIR	Jun 2020	Dec 2021	90	1,901.722	Y		Mar 2019
2.1.3) MK 14 CANISTERS(†)		2016	BAE / MINNEAPOLIS, MN	C / FP	NAVSEA	Mar 2016	Sep 2017	149	79.127	Y		Jun 2012
2.1.3) MK 14 CANISTERS(†)		2017	Naval Munitions Command Weapons Station / Various	WR	N/A	Mar 2017	Sep 2018	196	21.128	Y		Jul 2016
2.1.3) MK 14 CANISTERS(†)		2018	Naval Munitions Command Weapons Station / Various	WR	N/A	Aug 2018	Mar 2019	44	32.955	Y		Mar 2018
2.1.3) MK 14 CANISTERS(†)	✓	2018	Naval Munitions Command Weapons Station / Various	WR	N/A	Aug 2018	Mar 2019	56	32.955	Y		Mar 2018
2.1.3) MK 14 CANISTERS(†)	✓	2020	BAE / MINNEAPOLIS, MN	C / FP	NAVSEA	Sep 2020	Nov 2021	90	137.089	Y		Aug 2018

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Item Number / Title [DODIC]:** 1 / Tomahawk

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
										Calendar Year 2016												Calendar Year 2017									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) TACTICAL TOMAHAWK (VLS) (1)																															
Prior Years Deliveries: 2841																															
	1	2016	NAVY	149	0	149															A -	-	-	-	-	-	-	-	-	-	149
	1	2017	NAVY	196	0	196																								A -	196
	1	2018	NAVY	44	0	44																									44
✓	1	2018	NAVY	56	0	56																									56
✓	1	2020	NAVY	90	0	90																									90
2.1.3) MK 14 CANISTERS (2)																															
Prior Years Deliveries: 2841																															
	3	2016	NAVY	149	0	149						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	147
	2	2017	NAVY	196 (8)	0	196																		A -	-	-	-	-	-	-	196
	2	2018	NAVY	44	0	44																									44
✓	2	2018	NAVY	56	0	56																									56
✓	3	2020	NAVY	90	0	90																									90
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1 | **P-1 Line Item Number / Title:** 2101 / Tomahawk | **Item Number / Title [DODIC]:** 1 / Tomahawk

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) TACTICAL TOMAHAWK (VLS) (1)																															
Prior Years Deliveries: 2841																															
	1	2016	NAVY	149	0	149	-	-	2	14	14	14	14	13	13	13	13	13	13	13											0
	1	2017	NAVY	196	0	196	-	-	-	-	-	-	-	-	-	-	-	16	16	16	17	17	16	16	16	17	17	15	17		0
	1	2018	NAVY	44	0	44							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	35
✓	1	2018	NAVY	56	0	56							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	36
✓	1	2020	NAVY	90	0	90																									90
2.1.3) MK 14 CANISTERS (2)																															
Prior Years Deliveries: 2841																															
	3	2016	NAVY	149	2	147	14	14	14	14	13	13	13	13	13	13	13														0
	2	2017	NAVY	196 (8)	0	196	-	-	-	-	-	-	-	-	-	-	-	16	16	16	16	16	17	16	17	16	17	16	17		0
	2	2018	NAVY	44	0	44											A -	-	-	-	-	-	-	3	3	3	3	3	3	3	23
✓	2	2018	NAVY	56	0	56											A -	-	-	-	-	-	-	5	5	5	5	5	5	4	22
✓	3	2020	NAVY	90	0	90																									90
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Item Number / Title [DODIC]:** 1 / Tomahawk

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) TACTICAL TOMAHAWK (VLS) (1)																															
Prior Years Deliveries: 2841																															
	1	2016	NAVY	149	149	0																									0
	1	2017	NAVY	196	196	0																									0
	1	2018	NAVY	44	9	35	3	3	2	2	2	2	2	2	-	-	1	1	1	2	2	2	2	2	2	2					0
✓	1	2018	NAVY	56	20	36	5	5	5	5	4	4	4	4																	0
✓	1	2020	NAVY	90	0	90									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
2.1.3) MK 14 CANISTERS (2)																															
Prior Years Deliveries: 2841																															
	3	2016	NAVY	149	149	0																									0
	2	2017	NAVY	196 (8)	196	0																									0
	2	2018	NAVY	44	21	23	3	3	3	-	-	-	-	-	-	-	2	2	2	2	2	2	2								0
✓	2	2018	NAVY	56	34	22	4	4	4	5	5																				0
✓	3	2020	NAVY	90	0	90												A -	-	-	-	-	-	-	-	-	-	-	-	-	90
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1 | **P-1 Line Item Number / Title:** 2101 / Tomahawk | **Item Number / Title [DODIC]:** 1 / Tomahawk

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) TACTICAL TOMAHAWK (VLS) (1)																															
Prior Years Deliveries: 2841																															
	1	2016	NAVY	149	149	0																									0
	1	2017	NAVY	196	196	0																									0
	1	2018	NAVY	44	44	0																									0
✓	1	2018	NAVY	56	56	0																									0
✓	1	2020	NAVY	90	0	90	-	-	7	7	7	8	8	7	8	8	7	8	8	7											0
2.1.3) MK 14 CANISTERS (2)																															
Prior Years Deliveries: 2841																															
	3	2016	NAVY	149	149	0																									0
	2	2017	NAVY	196 (8)	196	0																									0
	2	2018	NAVY	44	44	0																									0
✓	2	2018	NAVY	56	56	0																									0
✓	3	2020	NAVY	90	0	90	-	7	7	7	8	8	7	8	8	7	8	8	7												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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Item Number / Title [DODIC]:** 1 / Tomahawk

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 Missile System - Tucson AZ	90	360	456	0	0	0	0	0	8	14	22
2	Naval Munitions Command Weapons Station - Various	90	360	456	0	0	0	0	0	10	15	25
3	BAE - MINNEAPOLIS, MN	90	360	360	0	0	0	0	0	6	10	16

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(8) MSR/MAX production rates are based on canister contract constraints. Multiple canister configurations are manufactured at BAE in Aberdeen, South Dakota for multiple customers in the same facility. The family includes MK7, MK8, MK13, MK15, MK21 and MK236. As a result of the broad number of customers, the demand level is sufficient for the industrial base. There is no specific MSR/MAX for the MK14 TACTOM canister. MSR/MAX would be a factor of the entire family of canisters. MSR for TACTOM missiles is 90 when executing concurrently with the Recertification Program.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	30.043	78.406	0.000	182.014	182.014	166.130	212.062	305.055	257.751	3,270.533	4,501.994
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	30.043	78.406	0.000	182.014	182.014	166.130	212.062	305.055	257.751	3,270.533	4,501.994
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**30.043**	**78.406**	**0.000**	**182.014**	**182.014**	**166.130**	**212.062**	**305.055**	**257.751**	**3,270.533**	**4,501.994**
(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:

The Tactical Tomahawk (TACTOM) Navigation Communication Modernization kits (NAV/COMMs) formerly known as Anti-Access Area Denial (A2AD) Modernization kits consist of the Integrated Single Box Solution (ISBS) radio, two new antennas and associated cabling, a new mid-body cover, and changes to the aft-body structure and aft-body cover. The ISBS radio is replacing the existing Satellite Data Link Terminal (SDLT); and the new Ultra High Frequency (UHF) antenna is replacing the existing UHF antenna. A second antenna is being added to the missile to accommodate a second frequency band. The changes to the missile are driven by the obsolescence of the SDLT hardware and the obsolescence of the UHF Demand Assigned Multiple Access (DAMA) communications infrastructure that is being phased out of service. Tomahawk Weapon System Baseline IV, Operational Requirements Document (SN 641-76-04), Revision 3, 11 August 2004.

As part of the Recertification (ACAT II) program, all Block IV TACTOMs will be updated to the modernized Block V configuration with the incorporation of NAV/COMMs kits starting in FY 2020. Recertification inventory objective is 3992.

The TACTOM service life for RGM109E and UGM109E Block IV/V Tomahawk cruise missiles is 30 years with a 15 year deployment and recertification cycle. The TACTOM Recertification program includes FY 2019 funding associated with the non-recurring engineering across the prime contractor and sub-tiered vendor base required for the Stand-up/Support Equipment upgrades of the Tactical Tomahawk recertification line. Stand-up/Support Equipment upgrades are inclusive of updating, refurbishing, and replacing existing Tooling and Test Equipment and Systems Integration Labs (SILs) which have been in existence from the early 1980s (Tomahawk Block II/III Depot and Production lines) along with the unique Block IV Tactical Tomahawk Tooling and Test Equipment procured in FY 2003/2004. All of these activities need to be completed to verify and validate the recertification line, in preparation for recertification inductions starting in FY 2020; and serve as an enabler for executing Recertification and Block V Production concurrently in FY 2020. In FY 2019 five TACTOM missiles will go through the end-to-end recertification process, formally 'Proving-In' recertification work instructions, the Raytheon line and sub-vendor recertification activities..

The yearly recertification profile will limit missile backlog within the Fleet due to the expiration of life limiting components. This activity includes the costs associated with the Raytheon labor, vendor recertification of specific components (i.e. mechanical and electrical components), recertification of the MK 45 submarine capsule, missile consumables, fuze recertification and fuel. Recertification is planned to occur concurrently with installation of NAV/COMMs Modernization Kits, which will replace the existing SDLT radio and antenna.

Maritime Strike Tomahawk (MST) is a Rapid Deployment Capability which includes seeker kit hardware,assemblies/subassemblies, packaging and storage. Seeker kit hardware procurement includes the sensors, nosecone, ULTRA processor, cooling pump and plumbing, bulkhead, power and signal harnesses, power supply, plumbing and electrical chase insulators, telemetry unit, wiring, magnet generator, and alternator voltage control converter. Includes modifying existing missile infrastructure to accept/install seeker kit components and assemblies into a modernized Block V missile.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: TACTOM	**Modification Type:** Increase Capability and Maintain Reliability	**Related RDT&E PEs:** 0204229N

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 3: Recertification												
A Kits												
Recurring												
1.1.1) Recertification kits - NonOrganic (9)	- / -	- / -	5 / 6.290	- / 0.000	112 / 30.951	112 / 30.951	156 / 36.160	156 / 32.580	348 / 51.120	274 / 39.420	2,941 / 963.957	3,992 / 1,160.478
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / 6.290*	*- / 0.000*	*- / 30.951*	*- / 30.951*	*- / 36.160*	*- / 32.580*	*- / 51.120*	*- / 39.420*	*- / 963.957*	*- / 1,160.478*
Subtotal: Recertification	*- / -*	*- / -*	*5 / 6.290*	*- / 0.000*	*112 / 30.951*	*112 / 30.951*	*156 / 36.160*	*156 / 32.580*	*348 / 51.120*	*274 / 39.420*	*2,941 / 963.957*	*3,992 / 1,160.478*
Modification Item 2 of 3: NAV/COMMs												
A Kits												
Recurring												
2.1.1) NAV/COMMs - NonOrganic (10)	- / -	5 / 2.270	112 / 29.679	- / 0.000	156 / 38.407	156 / 38.407	156 / 38.185	348 / 72.740	274 / 58.200	255 / 56.100	2,686 / 593.134	3,992 / 888.715
Subtotal: Recurring	*- / 0.000*	*- / 2.270*	*- / 29.679*	*- / 0.000*	*- / 38.407*	*- / 38.407*	*- / 38.185*	*- / 72.740*	*- / 58.200*	*- / 56.100*	*- / 593.134*	*- / 888.715*
Subtotal: NAV/COMMs	*- / -*	*5 / 2.270*	*112 / 29.679*	*- / 0.000*	*156 / 38.407*	*156 / 38.407*	*156 / 38.185*	*348 / 72.740*	*274 / 58.200*	*255 / 56.100*	*2,686 / 593.134*	*3,992 / 888.715*
Modification Item 3 of 3: MST												
A Kits												
Recurring												
3.1.1) MST Recurring - NonOrganic (11)	- / -	- / -	- / -	- / 0.000	20 / 16.963	20 / 16.963	44 / 35.539	65 / 49.653	142 / 108.532	104 / 66.869	947 / 706.699	1,322 / 984.255
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / 0.000*	*- / 16.963*	*- / 16.963*	*- / 35.539*	*- / 49.653*	*- / 108.532*	*- / 66.869*	*- / 706.699*	*- / 984.255*
Subtotal: MST	*- / -*	*- / -*	*- / -*	*- / 0.000*	*20 / 16.963*	*20 / 16.963*	*44 / 35.539*	*65 / 49.653*	*142 / 108.532*	*104 / 66.869*	*947 / 706.699*	*1,322 / 984.255*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 2.270*	*- / 35.969*	*- / 0.000*	*- / 86.321*	*- / 86.321*	*- / 109.884*	*- / 154.973*	*- / 217.852*	*- / 162.389*	*- / 2,263.790*	*- / 3,033.448*
Support *(All Modification Items)*												
4.1) Other Production Support- NAV/COMMs Modifications (12)	- / 0.000	- / 4.725	- / 1.461	- / 0.000	- / 0.182	- / 0.182	- / 0.183	- / 0.187	- / 0.184	- / 0.187	- / 2.138	- / 9.247
4.2) Support Equipment- NAV/COMMs Modification (13)	- / 0.000	- / 0.000	- / 1.934	- / 0.000	- / 0.038	- / 0.038	- / 0.035	- / 0.035	- / 0.035	- / 0.310	- / 0.369	- / 2.756
4.3) Integrated Logistics Support- NAV/COMMs Modification (14)	- / 0.000	- / 2.252	- / 1.706	- / 0.000	- / 0.027	- / 0.027	- / 0.024	- / 0.024	- / 0.024	- / 0.063	- / 0.211	- / 4.331
4.4) Other Production Support- Recertification (15)	- / 0.000	- / 0.000	- / 4.899	- / 0.000	- / 1.225	- / 1.225	- / 1.227	- / 1.157	- / 1.076	- / 1.228	- / 32.067	- / 42.879
4.5) Support Equipment- Recertification (16)	- / 0.000	- / 0.000	- / 13.644	- / 0.000	- / 56.290	- / 56.290	- / 0.269	- / 0.275	- / 0.280	- / 0.285	- / 6.928	- / 77.971
4.6) Integrated Logistics Support- Recertification (17)	- / 0.000	- / 0.000	- / 0.895	- / 0.000	- / 0.176	- / 0.176	- / 0.197	- / 0.183	- / 0.187	- / 0.193	- / 4.618	- / 6.449

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: TACTOM	**Modification Type:** Increase Capability and Maintain Reliability	**Related RDT&E PEs:** 0204229N

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
4.7) MK-45 Support- Recertification [18]	- / 0.000	- / 2.046	- / 9.300	- / 0.000	- / 2.171	- / 2.171	- / 3.815	- / 2.903	- / 2.157	- / 2.196	- / 94.570	- / 119.158
4.8) Recertification Line Stand-Up [19]	- / 0.000	- / 18.750	- / 3.039	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / -	- / 21.789
4.9) Other Production Support- MST	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.173	- / 0.173	- / 0.439	- / 0.862	- / 3.449	- / 0.425	- / 2.257	- / 7.605
4.10) Support Equipment- MST [20]	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.158	- / 0.158	- / 0.135	- / 0.497	- / 2.469	- / 0.121	- / 0.641	- / 4.021
4.11) Integrated Logistics Support-MST	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.105	- / 0.105	- / 0.090	- / 0.330	- / 2.309	- / 0.083	- / 0.440	- / 3.357
Subtotal: Support	*- / 0.000*	*- / 27.773*	*- / 36.878*	*- / 0.000*	*- / 60.545*	*- / 60.545*	*- / 6.414*	*- / 6.453*	*- / 12.170*	*- / 5.091*	*- / 144.239*	*- / 299.563*
Installation												
Modification Item 1 of 3: Recertification	- / 0.000	- / 0.000	- / 4.485	- / 0.000	- / 31.046	- / 31.046	- / 40.683	- / 37.615	- / 52.523	- / 53.804	- / 574.034	- / 794.190
Modification Item 2 of 3: NAV/COMMs	- / 0.000	- / 0.000	- / 1.074	- / 0.000	- / 4.102	- / 4.102	- / 5.452	- / 5.082	- / 11.110	- / 9.520	- / 94.087	- / 130.427
Modification Item 3 of 3: MST	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 3.697	- / 7.939	- / 11.400	- / 26.947	- / 194.383	- / 244.366
Subtotal: Installation	*- / 0.000*	*- / -*	*- / 5.559*	*- / 0.000*	*- / 35.148*	*- / 35.148*	*- / 49.832*	*- / 50.636*	*- / 75.033*	*- / 90.271*	*- / 862.504*	*- / 1,168.983*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**30.043**	**78.406**	**0.000**	**182.014**	**182.014**	**166.130**	**212.062**	**305.055**	**257.751**	**3,270.533**	**4,501.994**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits

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

Modification Item 1 of 3: Recertification

Manufacturer Information

Manufacturer Name: RAYTHEON Company | Manufacturer Location: TUCSON, AZ

Administrative Leadtime *(in Months)*: 1 | Production Leadtime *(in Months)*: 2

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

Installation Information

Method of Implementation: Contractor:: Installation Name: Recertification kits

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	5 / 4.485	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 4.485
FY 2020	- / -	- / -	- / -	0 / 0.000	112 / 31.046	112 / 31.046	- / -	- / -	- / -	- / -	0 / 0.000	112 / 31.046
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	156 / 40.683	- / -	- / -	- / -	0 / 0.000	156 / 40.683
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	156 / 37.615	- / -	- / -	0 / 0.000	156 / 37.615
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	348 / 52.523	- / -	0 / 0.000	348 / 52.523
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	274 / 53.804	0 / 0.000	274 / 53.804
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2,941 / 574.034	2,941 / 574.034
Total	- / -	- / -	5 / 4.485	0 / 0.000	112 / 31.046	112 / 31.046	156 / 40.683	156 / 37.615	348 / 52.523	274 / 53.804	2,941 / 574.034	3,992 / 794.190

Installation Schedule

		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
	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	-	28	28	28	28	39	39	39	39	39	39	39	39	87	87	87	87	69	69	68	68	2,941	3,992
Out	-	-	-	-	-	-	-	-	5	-	28	28	28	28	39	39	39	39	39	39	39	39	87	87	87	87	69	69	68	3,009	3,992

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits

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

Modification Item 2 of 3: NAV/COMMs

Manufacturer Information

Manufacturer Name: RAYTHEON Company | Manufacturer Location: TUCSON, AZ

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 12

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

Installation Information

Method of Implementation: Contractor:: Installation Name: NAV/COMMs

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	5 / 1.074	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	5 / 1.074
FY 2019	- / -	- / -	- / -	0 / 0.000	112 / 4.102	112 / 4.102	- / -	- / -	- / -	- / -	0 / 0.000	112 / 4.102
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	156 / 5.452	- / -	- / -	- / -	0 / 0.000	156 / 5.452
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	156 / 5.082	- / -	- / -	0 / 0.000	156 / 5.082
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	348 / 11.110	- / -	0 / 0.000	348 / 11.110
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	274 / 9.520	0 / 0.000	274 / 9.520
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	255 / 0.000	255 / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2,686 / 94.087	2,686 / 94.087
Total	- / -	- / -	5 / 1.074	0 / 0.000	112 / 4.102	112 / 4.102	156 / 5.452	156 / 5.082	348 / 11.110	274 / 9.520	2,941 / 94.087	3,992 / 130.427

Installation Schedule

		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
	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	28	28	28	28	39	39	39	39	39	39	39	39	88	88	86	86	69	69	68	68	2,941	3,992
Out	-	-	-	-	-	1	1	2	1	28	28	28	28	39	39	39	39	39	39	39	39	88	88	86	86	69	69	68	68	2,941	3,992

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits

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

Modification Item 3 of 3: MST

Manufacturer Information

Manufacturer Name: RAYTHEON Company | Manufacturer Location: TUCSON, AZ

Administrative Leadtime *(in Months)*: 2 | Production Leadtime *(in Months)*: 13

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

Installation Information

Method of Implementation: Contractor:: Installation Name: MST Recurring

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	20 / 3.697	- / -	- / -	- / -	0 / 0.000	20 / 3.697
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	44 / 7.939	- / -	- / -	0 / 0.000	44 / 7.939
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	65 / 11.400	- / -	0 / 0.000	65 / 11.400
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	142 / 26.947	0 / 0.000	142 / 26.947
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	104 / 0.000	104 / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	947 / 194.383	947 / 194.383
Total	- / -	- / -	- / -	- / -	- / -	- / -	20 / 3.697	44 / 7.939	65 / 11.400	142 / 26.947	1,051 / 194.383	1,322 / 244.366

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	11	11	11	11	17	16	16	16	36	36	35	35	1,051	1,322
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	11	11	11	11	17	16	16	16	36	36	35	35	1,051	1,322

Footnotes:

(9) Learning curve, quantity variations affecting economy of scale, and escalation rates account for the variation in Recertification kit costs across the FYDP. FY 2019 will be the initial Recertification lot procurement.

(10) FY 2018 funding and quantity reflect Enacted amounts. Only five NAV/COMMs kits were procured in FY 2018, in support of Recertification 'prove-in', which slipped to FY 2019.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 1	**P-1 Line Item Number / Title:** 2101 / Tomahawk	**Modification Number / Title:** 1 / TACTOM NAV/COMMs Modernization and Recertification Kits
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(11) Learning curve, quantity variations affecting economy of scale, and escalation rates account for the variation in MST kit costs across the FYDP. FY 2020 will be the initial year for MST kit procurements.

(12) FY 2020 funding required for post production qualification radio and crypto support. Funding reflects required obsolescence mitigation including avionic, electrical, and structures bill of material development, and obsolescence Engineering Change Proposal forecasting in order to support the extended end of service date.

(13) Includes unique support and test equipment required to support the integration of the NAV/COMMs, Modernization Kits during recertification. This would include planning, resourcing and implementing management actions to acquire and support the equipment required to sustain and validate the NAV/COMMs capability/functionality ensuring that the TACTOM is available to the warfighter when it is needed.

(14) Includes costs for support equipment management, computer resources support, training and training support, ILS program management, and packaging, handling, storage and transportation as associated with the NAV/COMMs Modernization Kit.

(15) Unique government and contractor production support and recurring fixed costs that is required per lot of recertification kit. Funding reflects required obsolescence mitigation including avionic, electrical, and structures bill of material development, and obsolescence Engineering Change Proposal forecasting in order to support the extended end of service date.

(16) Increase in FY 2020 is associated with the increased demand on unique support and test equipment associated with the concurrent production of Block V TACTOM starting in FY 2020. Funding in FY 2019 and FY 2020 includes modifications/procurement of unique support and test equipment required to enable/support the integration and test of the recertification kit. This encompasses System Integration Lab (SIL), Hardware Integration Lab (HWIL), Air Vehicle System Integration Lab (AVSIL), Guidance Test Sets (GTSs) and Mid-body Range Safety Subsystem (MRSS) Kits. Funding also includes the planning, resourcing, and implementing management actions to acquire and support the equipment required to sustain and validate the capability/functionality ensuring that the TACTOM is available to the warfighter when needed.

(17) Costs include support equipment management, computer resources support, training and training support, ILS program management, and packaging, handling, storage and transportation as associated with the recertification kit.

(18) FY 2020-FY 2024 funding is required to recertify and extend the service life of the Composite Capsule Launching System (CCLS) barrels through procurement of rotable pool Capsule Launching System (CLS) capsules, design and qualification of CLS missile CCA seals to support the life cycle of recertification efforts, and procurement of the hydro dynamic test fixture required for Capsule Closure Assembly (CCA) seal certification.

(19) Recertification Line Stand-up funding is required for the prove in of the end-to-end recertification processes. The process takes five Block IV missiles through the entire recertification process. This is essential to qualifying test and tooling equipment, refining recertification processes and exercising quality/inspection procedures. All of which ensures that the end-to-end recertification line is ready for induction of missiles in FY 2020. Funding in FY 2019 includes modifications/procurement of unique support and test equipment required to enable/support the integration and test of the recertification kit. This encompasses System Integration Lab (SIL), Hardware Integration Lab (HWIL), Air Vehicle System Integration Lab (AVSIL), Guidance Test Sets (GTSs) and Mid-body Range Safety Subsystem (MRSS) Kits. Funding also includes the planning, resourcing, and implementing management actions to acquire and support the equipment required to sustain and validate the capability/functionality ensuring that the TACTOM is available to the warfighter when needed.

(20) Support Equipment increases from FY 2022 to FY 2023 due to the increase in quantities.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2206 / AMRAAM

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

Line Item MDAP/MAIS Code: 185

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	2,615	120	141	-	169	169	331	358	363	364	-	4,461
Gross/Weapon System Cost *($ in Millions)*	2,541.225	185.285	188.441	0.000	224.502	224.502	354.160	359.358	367.390	374.737	-	4,595.098
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,541.225	185.285	188.441	0.000	224.502	224.502	354.160	359.358	367.390	374.737	-	4,595.098
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,541.225**	**185.285**	**188.441**	**0.000**	**224.502**	**224.502**	**354.160**	**359.358**	**367.390**	**374.737**	**-**	**4,595.098**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	3.127	0.692	0.000	8.910	8.910	8.761	2.418	2.480	2.559	Continuing	Continuing
Flyaway Unit Cost *($ in Thousands)*	909.095	1,433.667	1,315.830	-	1,310.893	1,310.893	1,061.091	991.626	993.810	1,012.593	-	984.523
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $224.502M for Overseas Contingency Operations (OCO); of which $224.502M and 169 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Advanced Medium Range Air-to-Air Missile (AMRAAM) is the premier all-weather, all-environment radar guided missile developed jointly by the Air Force and Navy. The Air Force is the lead service. AMRAAM is a small, light, fast missile with improved capabilities against very low and high-altitude targets in an electronic attack (EA) environment. The AIM-120D provides increased performance from improved kinematics, GPS-aided navigation, a two-way data link; which enhances aircrew survivability and network compatibility. Additional enhancements include new guidance software to combat a technologically capable adversary to reduce risk in air combat scenarios, and limit missile defense challenges.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2206 / AMRAAM

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

Line Item MDAP/MAIS Code: 185

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / AMRAAM	P-5a, P-21			2,615 / 2,541.225	120 / 185.285	141 / 188.441	- / 0.000	169 / 224.502	169 / 224.502
P-40	**Total Gross/Weapon System Cost**				**2,615 / 2,541.225**	**120 / 185.285**	**141 / 188.441**	**- / 0.000**	**169 / 224.502**	**169 / 224.502**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 funding procures 169 AMRAAM missiles in support of warfighter requirements. Quantity and funding in FY 2020 is limited due to the ramp rate of Form, Fit, and Function (F3R) missile production.

Funding also provides required support costs such as: test and technical production support, procurement of training equipment, diminishing manufacturing sources, long lead items and test equipment/test equipment upgrades to support the AIM-120D configuration.

The FY 2020 quantities were reduced by 53 missiles since the FY 2019 President's Budget submission due to production delays required to address obsolescence issues in the current guidance section design and to realign funding to RDT&E to match USAF efforts.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2206 / AMRAAM	Item Number / Title [DODIC]: 1 / AMRAAM
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	2,615	120	141	-	169	169
Gross/Weapon System Cost *($ in Millions)*	2,541.225	185.285	188.441	0.000	224.502	224.502
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,541.225	185.285	188.441	0.000	224.502	224.502
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,541.225**	**185.285**	**188.441**	**0.000**	**224.502**	**224.502**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	3.127	0.692	0.000	8.910	8.910
Gross/Weapon System Unit Cost *($ in Thousands)*	971.788	1,544.042	1,336.461	-	1,328.414	1,328.414

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - MISSILE Cost																		
Recurring Cost																		
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(1) (1)	606.234	2,280	1,382.214	1,041.800	120	125.016	987.400	141	139.223	-	-	0.000	1,202.994	169	203.306	1,202.994	169	203.306
1.1.2) AIM-120 MISSILE - CAPTIVE AIR TRAINING MISSILE (CATM)	613.791	335	205.620	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.3) WARRANTY	-	-	36.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.4) DIMINISHING MANUFACTURING SOURCES (DMS)	-	-	198.663	-	-	22.264	-	-	31.898	-	-	0.000	-	-	11.425	-	-	11.425
1.1.5) TOOLING AND TEST EQUIPMENT	-	-	29.590	-	-	9.776	-	-	7.848	-	-	0.000	-	-	2.511	-	-	2.511
1.1.6) ENGINEERING CHANGE ORDERS (ECO) (2)	-	-	33.644	-	-	0.870	-	-	0.864	-	-	0.000	-	-	1.029	-	-	1.029
Subtotal: Recurring Cost	-	-	*1,885.851*	-	-	*157.926*	-	-	*179.833*	-	-	*0.000*	-	-	*218.271*	-	-	*218.271*
Subtotal: Flyaway - MISSILE Cost	**-**	**-**	***1,885.851***	**-**	**-**	***157.926***	**-**	**-**	***179.833***	**-**	**-**	***0.000***	**-**	**-**	***218.271***	**-**	**-**	***218.271***
Flyaway - NONRECURRING and ANCILLARY EQUIPMENT Cost																		
Non Recurring Cost																		
2.1.1) SPECIAL TOOLING AND TEST EQUIPMENT	-	-	85.866	-	-	7.648	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2206 / AMRAAM	Item Number / Title [DODIC]: 1 / AMRAAM
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
2.1.2) CONTAINERS (3)	-	-	5.204	-	-	2.000	-	-	2.000	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*91.070*	-	-	*9.648*	-	-	*2.000*	-	-	-	-	-	-	-	-	-
Subtotal: Flyaway - NONRECURRING and ANCILLARY EQUIPMENT Cost	**-**	**-**	***91.070***	**-**	**-**	***9.648***	**-**	**-**	***2.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Flyaway - PRODUCTION SUPPORT Cost																		
Recurring Cost																		
3.1.1) TEST SUPPORT	-	-	133.728	-	-	1.575	-	-	0.857	-	-	0.000	-	-	0.872	-	-	0.872
3.1.2) TECHNICAL SUPPORT	-	-	266.635	-	-	2.891	-	-	2.842	-	-	0.000	-	-	2.398	-	-	2.398
Subtotal: Recurring Cost	-	-	*400.363*	-	-	*4.466*	-	-	*3.699*	-	-	*0.000*	-	-	*3.270*	-	-	*3.270*
Subtotal: Flyaway - PRODUCTION SUPPORT Cost	**-**	**-**	***400.363***	**-**	**-**	***4.466***	**-**	**-**	***3.699***	**-**	**-**	***0.000***	**-**	**-**	***3.270***	**-**	**-**	***3.270***
Support - SUPPORT COST - FLEET Cost																		
4.1) PECULIAR SUPPORT EQUIPMENT	-	-	60.880	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) TRAINING EQUIPMENT (4)	-	-	23.864	-	-	12.000	-	-	1.641	-	-	0.000	-	-	1.701	-	-	1.701
4.3) INTEGRATED LOGISTICS SUPPORT (ILS)	-	-	79.197	-	-	1.245	-	-	1.268	-	-	0.000	-	-	1.260	-	-	1.260
Subtotal: Support - SUPPORT COST - FLEET Cost	**-**	**-**	***163.941***	**-**	**-**	***13.245***	**-**	**-**	***2.909***	**-**	**-**	***0.000***	**-**	**-**	***2.961***	**-**	**-**	***2.961***
Gross/Weapon System Cost	**971.788**	**2,615**	**2,541.225**	**1,544.042**	**120**	**185.285**	**1,336.461**	**141**	**188.441**	**-**	**-**	**0.000**	**1,328.414**	**169**	**224.502**	**1,328.414**	**169**	**224.502**

Remarks:
The "To Complete" column reflects missile production through FY 2025.

(†) indicates the presence of a P-5a

Footnotes:
(1) Unit cost calculations are based on combined procurement of Navy, Air Force and FMS buys for each fiscal year. Increase in unit cost from FY 2019 to FY 2020 is due to significantly less quantity of common components across Navy, Air Force, and FMS procurements.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2206 / AMRAAM	Item Number / Title [DODIC]: 1 / AMRAAM
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

(2) Engineering Change Orders line provides funding to test and qualify class I engineering change proposals by the prime vendor into missile production. Fluctuations correspond directly with total cost of hardware procured.

(3) Containers are required to maintain pace with quantities, ensure the updated in-container reprogramming capability continues and replace outdated/damaged containers.

(4) Training equipment request includes funding for AMRAAM Telemetry System (ATS) used to collect missile performance data for in production missiles to support product improvement within the current performance envelope.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2206 / AMRAAM	Item Number / Title [DODIC]: 1 / AMRAAM

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(†)		2016 (5)	Raytheon Missile System (6) / Tucson, AZ	SS / FPIF	EGLIN AFB, FL	Mar 2016	Jun 2018	117	969.564	Y		Jul 2013
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(†)		2017	Raytheon Missile System (6) / Tucson, AZ	SS / FPIF	EGLIN AFB, FL	Dec 2017	Sep 2019	144	977.146	Y		Feb 2016
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(†)		2018	Raytheon Missile System (6) / Tucson, AZ	SS / FPIF	EGLIN AFB, FL	Mar 2018	Jun 2020	120	1,041.800	Y		Jan 2017
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(†)		2019	Raytheon Missile System (6) / Tucson, AZ	SS / FPIF	EGLIN AFB, FL	Aug 2019	Mar 2021	140	987.400	Y		Nov 2017
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(†)	✓	2019	Raytheon Missile System (6) / Tucson, AZ	SS / FPIF	EGLIN AFB, FL	Aug 2019	Mar 2021	1	987.400	Y		Nov 2017
1.1.1) AIM-120 MISSILE - ALL-UP-ROUND (AUR)(†)	✓	2020	Raytheon Missile System (6) / Tucson, AZ	SS / FPIF	EGLIN AFB, FL	Mar 2020	Apr 2022	169	1,202.994	Y		Jul 2018

(†) indicates the presence of a P-21

Footnotes:

(5) FY 2016 AUR deliveries have been delayed due to rebaselining to a quarterly vice a monthly schedule and adjust for overall production capacity

(6) AIM-120 MSR is 400 missiles per year, consisting of USN, USAF, and approved FMS procurement with no less than 100 of a particular variant. Max factory capactity enables production of 960 missiles. FY 2020 production capacity is constrained to 632 missiles, of which at least 242 are FMS missiles, due to ramp rate of Form, Fit, Function Refresh (F3R).

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2206 / AMRAAM	**Item Number / Title [DODIC]:** 1 / AMRAAM

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
										Calendar Year 2016												Calendar Year 2017									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) AIM-120 MISSILE - ALL-UP-ROUND (AUR) (1)																															
Prior Years Deliveries: 2019																															
	1	2016	NAVY	117	0	117						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117
	1	2016	AF (‡)	281	0	281						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	281
	1	2016	FMS (‡)	212	0	212						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	212
	1	**2016**	**Total**	**610**	**0**	**610**						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**610**
	1	2017	NAVY	144	0	144																									144
	1	2017	AF (‡)	256	0	256																									256
	1	2017	FMS (‡)	306	0	306																									306
	1	**2017**	**Total**	**706**	**0**	**706**																									**706**
	1	2018	NAVY	120	0	120																									120
	1	2018	AF (‡)	185	0	185																									185
	1	2018	FMS (‡)	279	0	279																									279
	1	**2018**	**Total**	**584**	**0**	**584**																									**584**
	1	2019	NAVY	140	0	140																									140
	1	2019	AF (‡)	222	0	222																									222
	1	2019	FMS (‡)	210	0	210																									210
	1	**2019**	**Total**	**572**	**0**	**572**																									**572**
✓	1	2019	NAVY	1	0	1																									1
✓	1	2020	NAVY	169	0	169																									169
✓	1	2020	AF (‡)	220	0	220																									220
✓	1	2020	FMS (‡)	220	0	220																									220
✓	**1**	**2020**	**Total OCO**	**609**	**0**	**609**																									**609**
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2206 / AMRAAM	**Item Number / Title [DODIC]:** 1 / AMRAAM

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) AIM-120 MISSILE - ALL-UP-ROUND (AUR) (1)																															
Prior Years Deliveries: 2019																															
	1	2016	NAVY	117	0	117	-	-	-	-	-	-	-	-	40	-	-	40	-	-	37	-	-	-							0
	1	2016	AF (‡)	281	0	281	-	-	-	-	-	-	-	-	72	-	-	64	-	-	73	-	-	72							0
	1	2016	FMS (‡)	212	0	212	-	-	-	-	-	-	-	-	52	-	-	61	-	-	47	-	-	52							0
	1	**2016**	**Total**	**610**	**0**	**610**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**164**	**-**	**-**	**165**	**-**	**-**	**157**	**-**	**-**	**124**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2017	NAVY	144	0	144			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	136
	1	2017	AF (‡)	256	0	256			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	204
	1	2017	FMS (‡)	306	0	306			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114	192
	1	**2017**	**Total**	**706**	**0**	**706**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**174**	**532**
	1	2018	NAVY	120	0	120						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
	1	2018	AF (‡)	185	0	185						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185
	1	2018	FMS (‡)	279	0	279						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	279
	1	**2018**	**Total**	**584**	**0**	**584**						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**584**
	1	2019	NAVY	140	0	140																							A -	-	140
	1	2019	AF (‡)	222	0	222																							A -	-	222
	1	2019	FMS (‡)	210	0	210																							A -	-	210
	1	**2019**	**Total**	**572**	**0**	**572**																							**-**	**-**	**572**
✓	1	2019	NAVY	1	0	1																							A -	-	1
✓	1	2020	NAVY	169	0	169																									169
✓	1	2020	AF (‡)	220	0	220																									220
✓	1	2020	FMS (‡)	220	0	220																									220
✓	**1**	**2020**	**Total OCO**	**609**	**0**	**609**																									**609**
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2206 / AMRAAM	**Item Number / Title [DODIC]:** 1 / AMRAAM

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) AIM-120 MISSILE - ALL-UP-ROUND (AUR) (1)																															
Prior Years Deliveries: 2019																															
	1	2016	NAVY	117	117	0																									0
	1	2016	AF (‡)	281	281	0																									0
	1	2016	FMS (‡)	212	212	0																									0
	1	**2016**	**Total**	**610**	**610**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2017	NAVY	144	8	136	-	-	-	-	-	136	-	-	-																0
	1	2017	AF (‡)	256	52	204	-	-	53	-	-	76	-	-	75																0
	1	2017	FMS (‡)	306	114	192	-	-	112	-	-	40	-	-	40																0
	1	**2017**	**Total**	**706**	**174**	**532**	**-**	**-**	**165**	**-**	**-**	**252**	**-**	**-**	**115**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2018	NAVY	120	0	120	-	-	-	-	-	-	-	-	51	-	-	-	-	-	69	-	-	-							0
	1	2018	AF (‡)	185	0	185	-	-	-	-	-	-	-	-	46	-	-	46	-	-	46	-	-	47							0
	1	2018	FMS (‡)	279	0	279	-	-	-	-	-	-	-	-	69	-	-	70	-	-	70	-	-	70							0
	1	**2018**	**Total**	**584**	**0**	**584**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**166**	**-**	**-**	**116**	**-**	**-**	**185**	**-**	**-**	**117**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2019	NAVY	140	0	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	35	-	-	35	35
	1	2019	AF (‡)	222	0	222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	-	-	55	-	-	56	56
	1	2019	FMS (‡)	210	0	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	52	-	-	53	53
	1	**2019**	**Total**	**572**	**0**	**572**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**142**	**-**	**-**	**142**	**-**	**-**	**144**	**144**
✓	1	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1							0
✓	1	2020	NAVY	169	0	169						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	169
✓	1	2020	AF (‡)	220	0	220						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220
✓	1	2020	FMS (‡)	220	0	220						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220
✓	**1**	**2020**	**Total OCO**	**609**	**0**	**609**						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**609**
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2206 / AMRAAM | **Item Number / Title [DODIC]:** 1 / AMRAAM

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) AIM-120 MISSILE - ALL-UP-ROUND (AUR) (1)																															
Prior Years Deliveries: 2019																															
	1	2016	NAVY	117	117	0																									0
	1	2016	AF (‡)	281	281	0																									0
	1	2016	FMS (‡)	212	212	0																									0
	1	**2016**	**Total**	**610**	**610**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2017	NAVY	144	144	0																									0
	1	2017	AF (‡)	256	256	0																									0
	1	2017	FMS (‡)	306	306	0																									0
	1	**2017**	**Total**	**706**	**706**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2018	NAVY	120	120	0																									0
	1	2018	AF (‡)	185	185	0																									0
	1	2018	FMS (‡)	279	279	0																									0
	1	**2018**	**Total**	**584**	**584**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2019	NAVY	140	105	35	-	-	35																						0
	1	2019	AF (‡)	222	166	56	-	-	56																						0
	1	2019	FMS (‡)	210	157	53	-	-	53																						0
	1	**2019**	**Total**	**572**	**428**	**144**	-	-	**144**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
✓	1	2019	NAVY	1	1	0																									0
✓	1	2020	NAVY	169	0	169	-	-	-	-	-	-	43	-	-	43	-	-	43	-	-	40									0
✓	1	2020	AF (‡)	220	0	220	-	-	-	-	-	-	55	-	-	55	-	-	55	-	-	55									0
✓	1	2020	FMS (‡)	220	0	220	-	-	-	-	-	-	55	-	-	55	-	-	55	-	-	55									0
✓	**1**	**2020**	**Total OCO**	**609**	**0**	**609**	-	-	-	-	-	-	**153**	-	-	**153**	-	-	**153**	-	-	**150**	-	-	-	-	-	-	-	-	**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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2206 / AMRAAM	**Item Number / Title [DODIC]:** 1 / AMRAAM

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 Missile System (6) - Tucson, AZ	400	400	960	6	3	21	24	15	6	24	30

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(6) AIM-120 MSR is 400 missiles per year, consisting of USN, USAF, and approved FMS procurement with no less than 100 of a particular variant. Max factory capactity enables production of 960 missiles. FY 2020 production capacity is constrained to 632 missiles, of which at least 242 are FMS missiles, due to ramp rate of Form, Fit, Function Refresh (F3R).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2209 / Sidewinder

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204162N, 0204138M	Other Related Program Elements: 0207161N, 0207161F, 0604319A

Line Item MDAP/MAIS Code: 000

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	2,302	185	311	-	292	292	299	236	177	135	-	3,937
Gross/Weapon System Cost *($ in Millions)*	856.895	76.915	121.481	0.000	119.456	119.456	127.446	114.784	99.749	101.745	-	1,618.471
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	856.895	76.915	121.481	0.000	119.456	119.456	127.446	114.784	99.749	101.745	-	1,618.471
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**856.895**	**76.915**	**121.481**	**0.000**	**119.456**	**119.456**	**127.446**	**114.784**	**99.749**	**101.745**	**-**	**1,618.471**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	3.208	1.531	0.000	3.280	3.280	1.598	3.218	2.730	2.274	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	337,102.52	352,497.30	352,813.50	-	367,695.21	367,695.21	385,003.34	433,516.95	491,666.67	659,896.30	-	368,770.89
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $119.456M for Overseas Contingency Operations (OCO); of which $119.456M and 292 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The AIM-9X Block II/II+ Sidewinder (AIM-9X Blk II/II+) continues the evolution of the AIM-9 series of missiles. This missile program delivers a launch and leave, air combat munition that uses passive Infrared (IR) energy to acquire and track enemy air targets and complements the radar guided Advanced Medium Range Air-to-Air Missile (AMRAAM). F/A-18 first shot, first kill opportunities while conducting basic fighter maneuvering (dogfighting) Within Visual Range (WVR) are essential for aircrew survival. The AIM-9X provides these opportunities with unmatched offensive and defensive capabilities against threats WVR, even when IR countermeasures are employed. The AIM-9X also provides air superiority in the Beyond Visual Range (BVR) air-to-air battle. Anti-tamper features have been incorporated to protect improvements inherent in this design. The AIM-9X Block II missile is critical for projecting power and winning decisively against threats identified in Defense Planning Guidance and the Navy's Navigation Plan.

AIM-9X is a Post Milestone C, Acquisition Category IC (ACAT-IC) joint service program led by the Department of the Navy. In June 2011, the Milestone Decision Authority (MDA) established the AIM-9X Block II missile program which was approved for entry at Milestone C for Low Rate Initial Production (LRIP). The 2366 A/B certification and Acquisition Program Baseline for AIM-9X Block II was signed December 23, 2011, and the Block I program was terminated. In August 2015, the program received approval for Full Rate Production (FRP), and the Acquisition Program Baseline was re-established.

In December 2017, the program began to procure a third variant of the missile labeled the AIM-9X Block II PLUS (Block II+) to satisfy the requirements of the Joint Strike Fighter platform. This version of the missile is being produced on the same production line as the AIM-9X Block II missile. For contracting purposes, the nomenclature of the AIM-9X Block II missile is identified as AIM-9X-2 and the AIM-9X Block II+ missile will be identified as AIM-9X-3.

The USN & USAF require additional quantities beyond the approved APB (Change 1: 31 Aug 2015); an update is in staffing for approval.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2209 / Sidewinder	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204162N, 0204138M	**Other Related Program Elements:** 0207161N, 0207161F, 0604319A
Line Item MDAP/MAIS Code: 000		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / SIDEWINDER BLOCK II	P-5a, P-21			2,302 / 856.895	185 / 76.915	311 / 121.481	- / 0.000	292 / 119.456	292 / 119.456
P-40	**Total Gross/Weapon System Cost**				**2,302 / 856.895**	**185 / 76.915**	**311 / 121.481**	**- / 0.000**	**292 / 119.456**	**292 / 119.456**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 provides funding to procure the sixth lot of Full Rate Production (FRP) AIM-9X Block II (Blk II) missiles, as well as the fourth lot of AIM-9X Block II Plus (Blk II+) missiles for the Navy and the Air Force. Previously planned missile procurements in FY18 and out associated with Army Indirect Fire Protection Capability Increment 2 (IFPC2) program have been removed from this budget.

The program unit costs are based on all quantities procured the US Navy, US Air Force and Foreign Military Sales customers. Total Program quantity by service includes a mix of All Up Round (AUR) missiles and Captive Air Training Missiles (CATM) as such:

The Navy will procure 3,937 total missiles under this Budget Line Item: 1,289 Block I missiles (885 AURs and 404 CATMs) and 2,648 Block II/II+ missiles(2067 AURs and 581 CATMs). In addition, the Navy procured 63 Block I missiles in FY 2001 under the AIM-9M Modification program (48 AURs and 15 CATMs).

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2209 / Sidewinder	Item Number / Title [DODIC]: 1 / SIDEWINDER BLOCK II
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	2,302	185	311	-	292	292
Gross/Weapon System Cost *($ in Millions)*	856.895	76.915	121.481	0.000	119.456	119.456
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	856.895	76.915	121.481	0.000	119.456	119.456
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**856.895**	**76.915**	**121.481**	**0.000**	**119.456**	**119.456**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	3.208	1.531	0.000	3.280	3.280
Gross/Weapon System Unit Cost *($ in Dollars)*	372,239.36	415,756.76	390,614.15	-	409,095.89	409,095.89

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Flyaway - MISSILE Cost																		
Recurring Cost																		
1.1.1) All Up Round - Block II(†) (1)	412,048.96	674	277.721	356,601.50	133	47.428	372,750.00	228	84.987	-	-	0.000	389,976.19	210	81.895	389,976.19	210	81.895
1.1.2) Captive Air Training Missile - Block II(†) (2)	219,515.57	289	63.440	184,375.00	40	7.375	193,026.67	75	14.477	-	-	0.000	202,756.76	74	15.004	202,756.76	74	15.004
1.1.3) All Up Round - Block II Plus(†) (3)	475,180.00	50	23.759	433,000.00	12	5.196	451,000.00	8	3.608	-	-	0.000	472,500.00	8	3.780	472,500.00	8	3.780
1.1.4) Engineering Change Orders - Block II (4)	-	-	2.038	-	-	1.627	-	-	2.655	-	-	0.000	-	-	2.637	-	-	2.637
1.1.5) Diminishing Manufacturing Sources (DMS) (5)	-	-	1.869	-	-	1.666	-	-	1.596	-	-	0.000	-	-	1.663	-	-	1.663
1.1.6) Government Cost (GFE & Testing) - Block II (6)	-	-	0.444	-	-	0.038	-	-	0.063	-	-	0.000	-	-	0.060	-	-	0.060
Subtotal: Recurring Cost	-	-	*369.271*	-	-	*63.330*	-	-	*107.386*	-	-	*0.000*	-	-	*105.039*	-	-	*105.039*
Subtotal: Flyaway - MISSILE Cost	**-**	**-**	***369.271***	**-**	**-**	***63.330***	**-**	**-**	***107.386***	**-**	**-**	***0.000***	**-**	**-**	***105.039***	**-**	**-**	***105.039***
Flyaway - Prior Year Sidewinder Block 1 Cost																		
Recurring Cost																		
2.1.1) Prior Year Sidewinder Block 1	-	-	364.058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2209 / Sidewinder	Item Number / Title [DODIC]: 1 / SIDEWINDER BLOCK II
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Recurring Cost	-	-	*364.058*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Flyaway - Prior Year Sidewinder Block 1 Cost	**-**	**-**	***364.058***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Flyaway - Nonrecurring and Ancillary Equip Cost																		
Non Recurring Cost																		
3.1.1) Special Tool & Test Equip (ST/STE) - Block II (7)	-	-	14.364	-	-	1.268	-	-	1.294	-	-	0.000	-	-	1.320	-	-	1.320
3.1.2) Missile Containers - Block II (8)	12,777.78	288	3.680	11,807.69	52	0.614	12,007.27	87	1.045	-	-	0.000	12,297.65	82	1.008	12,297.65	82	1.008
3.1.3) Nonrecurring Engineering - Block II	-	-	24.637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*42.681*	-	-	*1.882*	-	-	*2.339*	-	-	*0.000*	-	-	*2.328*	-	-	*2.328*
Subtotal: Flyaway - Nonrecurring and Ancillary Equip Cost	**-**	**-**	***42.681***	**-**	**-**	***1.882***	**-**	**-**	***2.339***	**-**	**-**	***0.000***	**-**	**-**	***2.328***	**-**	**-**	***2.328***
Support - Production Support Cost																		
4.1) Production Technical Support - Block II (9)	-	-	17.199	-	-	2.006	-	-	2.044	-	-	0.000	-	-	2.085	-	-	2.085
Subtotal: Support - Production Support Cost	**-**	**-**	***17.199***	**-**	**-**	***2.006***	**-**	**-**	***2.044***	**-**	**-**	***0.000***	**-**	**-**	***2.085***	**-**	**-**	***2.085***
Support - Support Costs Cost																		
5.1) Peculiar Support Equipment - Block II (10)	-	-	0.509	-	-	0.033	-	-	0.034	-	-	0.000	-	-	0.034	-	-	0.034
5.2) Training Support - Block II (11)	-	-	0.167	-	-	0.029	-	-	0.029	-	-	0.000	-	-	0.030	-	-	0.030
5.3) Training Equipment - Block II (12)	-	-	14.129	-	-	1.420	-	-	1.447	-	-	0.000	-	-	1.574	-	-	1.574
5.4) Contract Support - Block II	-	-	6.566	-	-	0.835	-	-	0.781	-	-	0.000	-	-	0.797	-	-	0.797
5.5) Government In-House Support - Block II (13)	-	-	42.315	-	-	7.380	-	-	7.421	-	-	0.000	-	-	7.569	-	-	7.569
Subtotal: Support - Support Costs Cost	**-**	**-**	***63.686***	**-**	**-**	***9.697***	**-**	**-**	***9.712***	**-**	**-**	***0.000***	**-**	**-**	***10.004***	**-**	**-**	***10.004***
Gross/Weapon System Cost	**372,239.36**	**2,302**	**856.895**	**415,756.76**	**185**	**76.915**	**390,614.15**	**311**	**121.481**	**-**	**-**	**0.000**	**409,095.89**	**292**	**119.456**	**409,095.89**	**292**	**119.456**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2209 / Sidewinder	Item Number / Title [DODIC]: 1 / SIDEWINDER BLOCK II
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Remarks:
[Flyaway]

(†) indicates the presence of a P-5a

Footnotes:

(1) AUR Block II - This budget exhibit represents only the US Navy portion of the total program procurement. AUR Block II unit cost changes are heavily driven by total program quantity changes from year to year. The majority of parts on an All Up Round (AUR) Block II are common with CATMs and Block II Plus. As a result, the overall quantities procured (between AUR Block II, AUR Block II Plus and CATMs) to include all customers (Navy, Air Force, and Foreign Military Sales) drive the unit cost. In addition to the Navy AUR Block II quantity decreasing from 228 in FY19 to 210 in FY20 as reflected in this exhibit, the total quantity of missile procurements (all configurations for all customers) decreases from 807 in FY19 to 727 in FY20, resulting in a higher unit cost.

(2) CATMs - This budget exhibit represents only the US Navy portion of the total program procurement. CATM unit cost changes are heavily driven by total program quantity changes from year to year. The unit cost increase for CATMs from FY19 to FY20 is due to an overall decrease in CATM quantities for the total program. Although the Navy CATM quantity only decreased by one from 75 in FY19 to 74 in FY20 as reflected in this exhibit, the total CATM quantity (for all customers) decreased from 169 in FY19 to 74 in FY20, resulting in a higher unit cost.

(3) AUR Block II Plus - This budget exhibit represents only the US Navy portion of the total program procurement. Block II Plus unit cost changes are heavily driven by total program quantity changes from year to year. The unit cost increase for Block II Plus from FY19 to FY20 is due to an overall decrease in Block II Plus quantity for the total program. Although the Navy Block II Plus did not change from 8 in FY19 to 8 in FY20 as reflected in this exhibit, the total Block II Plus quantity (for all customers) decreased from 138 in FY19 to 88 in FY20, resulting in a higher unit cost.

(4) The Engineering Change Orders line provides funding to test and qualify class 1 engineering changes proposed by the prime vendor into missile production. The increase in FY 2020 reflects planned production hardware engineering changes.

(5) DMS provides funding to design, develop, test and qualify form/fit/function replacement components to the production missile as a result of changes in sub-vendor manufacturers.

(6) The Government Furnished Equipment line procures government owned hardware required to produce the missiles. The primary item procured is warheads. The increase from FY 2019 to FY 2020 is due to increased total hardware buy. Beginning in 2021, the current warhead will be replaced with an improved insensitive munition warhead which will be contractor furnished equipment.

(7) The ST/STE line provides funding for production tooling and test equipment to the AIM-9X manufacturing line to ensure missiles are produced efficiently, and within specifications. Every 3 years the program requires production tooling to be replaced.

(8) Containers are procured to ship missiles and are procured 1 for every 4 missiles of each variant (missile variants cannot be mixed within a container). The unit cost increase from FY 2019 to FY2020 reflects updates to the pricing model. The updated model incorporates actual Raytheon contract equipment costs and uses the current Forward Pricing Rate Recommendation to estimate Raytheon labor.

(9) The production tech support line includes funding to manage technical documentation, training development and delivery, production support, and management of government owned property, to support production of AIM-9X configurations.

(10) The PSE line provides for calibration and procurement of government furnished gauges and equipment used to support missile production.

(11) The training support line provides technical publications and training manuals to fleet maintainers.

(12) The training equipment line includes the Telemetry (TM) Kits used to collect flight data for production qualification testing and weapons safety evaluations. TM kits are based on missile quantities. TM kits are manufactured by Naval Air Warfare Center, China Lake.

(13) The government in-house support line provides US Government Systems Engineering and Project Management support at Naval Air Warfare Centers for the production of the AIM-9X missile to ensure compliance with joint service developed cost, schedule and performance requirements.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2209 / Sidewinder	Item Number / Title [DODIC]: 1 / SIDEWINDER BLOCK II

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) All Up Round - Block II(†)		2016	Raytheon Missile Systems / Tucson, AZ	C / FPIF	NAVAIR	Jun 2016	Jan 2018	160	374,431.25	Y		Jan 2015
1.1.1) All Up Round - Block II(†)		2017	Raytheon Missile Systems / Tucson, AZ	C / FPIF	NAVAIR	Mar 2017	Apr 2019	70	376,471.43	Y		Jan 2016
1.1.1) All Up Round - Block II(†)		2018	Raytheon Missile Systems / Tucson, AZ	C / FPIF	NAVAIR	Dec 2018	Apr 2021	133	356,601.50	Y		Mar 2017
1.1.1) All Up Round - Block II(†)		2019	Raytheon Missile Systems / Tucson, AZ	C / FPIF	NAVAIR	Feb 2019	Dec 2021	227	372,750.00	Y		Jan 2018
1.1.1) All Up Round - Block II(†)	✓	2019	Raytheon Missile Systems / Tucson, AZ	C / FPIF	NAVAIR	Feb 2019	Dec 2021	1	373,000.00	Y		Jan 2018
1.1.1) All Up Round - Block II(†)	✓	2020	Raytheon Missile Systems / Tucson, AZ	C / FPIF	NAVAIR	Feb 2020	Oct 2022	210	389,976.19	Y		Jan 2019
1.1.2) Captive Air Training Missile - Block II(†)		2016	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Jun 2016	Jan 2018	47	199,914.89	Y		Jan 2015
1.1.2) Captive Air Training Missile - Block II(†)		2017	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Mar 2017	Apr 2019	32	194,968.75	Y		Jan 2016
1.1.2) Captive Air Training Missile - Block II(†)		2018	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Dec 2018	Apr 2021	40	184,375.00	Y		Mar 2017
1.1.2) Captive Air Training Missile - Block II(†)		2019	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Feb 2019	Dec 2021	75	193,026.67	Y		Jan 2018
1.1.2) Captive Air Training Missile - Block II(†)	✓	2020	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Feb 2020	Oct 2022	74	202,756.76	Y		Jan 2019
1.1.3) All Up Round - Block II Plus(†)		2017	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Mar 2017	Mar 2019	50	475,180.00	Y		Jan 2016
1.1.3) All Up Round - Block II Plus(†)		2018	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Dec 2018	Apr 2021	12	433,000.00	Y		Mar 2017
1.1.3) All Up Round - Block II Plus(†)		2019	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Feb 2019	Dec 2021	8	451,000.00	Y		Jan 2018
1.1.3) All Up Round - Block II Plus(†)	✓	2020	Raytheon Missile System / Tucson, AZ	C / FPIF	NAVAIR	Feb 2020	Oct 2022	8	472,500.00	Y		Jan 2019

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2209 / Sidewinder	**Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017													BALANCE
							Calendar Year 2016												Calendar Year 2017													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) All Up Round - Block II (1)																																
Prior Years Deliveries: 444																																
	1	2016	NAVY	160	0	160									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160
	1	2016	ARMY (‡)	5	0	5									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
	1	2016	AF (‡)	450	0	450									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450
	1	2016	FMS (‡)	64	0	64									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64
	1	**2016**	**Total**	**679**	**0**	**679**									**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**679**
	1	2017	NAVY	70	0	70																		A -	-	-	-	-	-	-	70
	1	2017	AF (‡)	160	0	160																		A -	-	-	-	-	-	-	160
	1	2017	FMS (‡)	120	0	120																		A -	-	-	-	-	-	-	120
	1	**2017**	**Total**	**350**	**0**	**350**																		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**350**
	1	2018	NAVY	133	0	133																									133
	1	2018	AF (‡)	180	0	180																									180
	1	2018	FMS (‡)	431	0	431																									431
	1	**2018**	**Total**	**744**	**0**	**744**																									**744**
	1	2019	NAVY	227	0	227																									227
	1	2019	AF (‡)	176	0	176																									176
	1	2019	FMS (‡)	176	0	176																									176
	1	**2019**	**Total**	**579**	**0**	**579**																									**579**
✓	1	2019	NAVY	1	0	1																									1
✓	1	2020	NAVY	210	0	210																									210
✓	1	2020	AF (‡)	275	0	275																									275
✓	1	2020	FMS (‡)	115	0	115																									115
✓	**1**	**2020**	**Total OCO**	**600**	**0**	**600**																									**600**
1.1.2) Captive Air Training Missile - Block II (2)																																
Prior Years Deliveries: 210																																
	2	2016	NAVY	47	0	47									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
	2	2016	AF (‡)	81	0	81									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81
	2	2016	FMS (‡)	128	0	128									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	128
	2	**2016**	**Total**	**256**	**0**	**256**									**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**256**
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2209 / Sidewinder	**Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017													BALANCE
										Calendar Year 2016												Calendar Year 2017										
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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	
	2	2017	NAVY	32	0	32																		A -	-	-	-	-	-	-	32
	2	2017	AF (‡)	77	0	77																		A -	-	-	-	-	-	-	77
	2	2017	FMS (‡)	98	0	98																		A -	-	-	-	-	-	-	98
	2	**2017**	**Total**	**207**	**0**	**207**																		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**207**
	2	2018	NAVY	40	0	40																									40
	2	2018	AF (‡)	64	0	64																									64
	2	2018	FMS (‡)	76	0	76																									76
	2	**2018**	**Total**	**180**	**0**	**180**																									**180**
	2	2019	NAVY	75	0	75																									75
	2	2019	FMS (‡)	76	0	76																									76
	2	**2019**	**Total**	**151**	**0**	**151**																									**151**
✓	2	2020	NAVY	74	0	74																									74
✓	2	2020	FMS (‡)	14	0	14																									14
✓	**2**	**2020**	**Total OCO**	**88**	**0**	**88**																									**88**
1.1.3) All Up Round - Block II Plus (3)																																
	3	2017	NAVY	50	0	50																		A -	-	-	-	-	-	-	50
	3	2017	AF (‡)	50	0	50																		A -	-	-	-	-	-	-	50
	3	**2017**	**Total**	**100**	**0**	**100**																		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**100**
	3	2018	NAVY	12	0	12																									12
	3	2018	AF (‡)	75	0	75																									75
	3	2018	FMS (‡)	74	0	74																									74
	3	**2018**	**Total**	**161**	**0**	**161**																									**161**
	3	2019	NAVY	8	0	8																									8
	3	2019	AF (‡)	80	0	80																									80
	3	2019	FMS (‡)	50	0	50																									50
	3	**2019**	**Total**	**138**	**0**	**138**																									**138**
✓	3	2020	NAVY	8	0	8																									8
✓	3	2020	AF (‡)	80	0	80																									80
✓	**3**	**2020**	**Total OCO**	**88**	**0**	**88**																									**88**
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2209 / Sidewinder | **Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

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) All Up Round - Block II (1)																															
Prior Years Deliveries: 444																															
	1	2016	NAVY	160	0	160	-	-	-	13	13	13	13	13	13	13	13	14	14	14	14										0
	1	2016	ARMY (‡)	5	0	5	-	-	-	-	-	-	1	-	1	-	1	-	1	-	1										0
	1	2016	AF (‡)	450	0	450	-	-	-	38	38	38	38	38	38	38	38	38	38	38	32										0
	1	2016	FMS (‡)	64	0	64	-	-	-	5	5	6	5	5	6	5	5	6	5	5	6										0
	1	**2016**	**Total**	**679**	**0**	**679**	**-**	**-**	**-**	**56**	**56**	**57**	**57**	**56**	**58**	**56**	**57**	**58**	**58**	**57**	**53**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2017	NAVY	70	0	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	10	10	9	8	4	24
	1	2017	AF (‡)	160	0	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	100
	1	2017	FMS (‡)	120	0	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	60
	1	**2017**	**Total**	**350**	**0**	**350**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**25**	**30**	**30**	**29**	**28**	**24**	**184**
	1	2018	NAVY	133	0	133															A -	-	-	-	-	-	-	-	-	-	133
	1	2018	AF (‡)	180	0	180															A -	-	-	-	-	-	-	-	-	-	180
	1	2018	FMS (‡)	431	0	431															A -	-	-	-	-	-	-	-	-	-	431
	1	**2018**	**Total**	**744**	**0**	**744**															**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**744**
	1	2019	NAVY	227	0	227																	A -	-	-	-	-	-	-	-	227
	1	2019	AF (‡)	176	0	176																	A -	-	-	-	-	-	-	-	176
	1	2019	FMS (‡)	176	0	176																	A -	-	-	-	-	-	-	-	176
	1	**2019**	**Total**	**579**	**0**	**579**																	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**579**
✓	1	2019	NAVY	1	0	1																	A -	-	-	-	-	-	-	-	1
✓	1	2020	NAVY	210	0	210																									210
✓	1	2020	AF (‡)	275	0	275																									275
✓	1	2020	FMS (‡)	115	0	115																									115
✓	**1**	**2020**	**Total OCO**	**600**	**0**	**600**																									**600**
1.1.2) Captive Air Training Missile - Block II (2)																															
Prior Years Deliveries: 210																															
	2	2016	NAVY	47	0	47	-	-	-	3	3	4	10	4	4	4	3	3	3	3	3										0
	2	2016	AF (‡)	81	0	81	-	-	-	5	10	10	6	6	6	6	7	6	7	6	6										0
	2	2016	FMS (‡)	128	0	128	-	-	-	11	11	10	11	11	10	11	11	10	11	11	10										0
	2	**2016**	**Total**	**256**	**0**	**256**	**-**	**-**	**-**	**19**	**24**	**24**	**27**	**21**	**20**	**21**	**21**	**19**	**21**	**20**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2209 / Sidewinder | **Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

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	
	2	2017	NAVY	32	0	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	20
	2	2017	AF (‡)	77	0	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	7	6	6	6	36
	2	2017	FMS (‡)	98	0	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	9	49
	2	**2017**	**Total**	**207**	**0**	**207**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**18**	**18**	**17**	**16**	**16**	**17**	**105**
	2	2018	NAVY	40	0	40															A -	-	-	-	-	-	-	-	-	-	40
	2	2018	AF (‡)	64	0	64															A -	-	-	-	-	-	-	-	-	-	64
	2	2018	FMS (‡)	76	0	76															A -	-	-	-	-	-	-	-	-	-	76
	2	**2018**	**Total**	**180**	**0**	**180**															**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**180**
	2	2019	NAVY	75	0	75																	A -	-	-	-	-	-	-	-	75
	2	2019	FMS (‡)	76	0	76																	A -	-	-	-	-	-	-	-	76
	2	**2019**	**Total**	**151**	**0**	**151**																	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**151**
✓	2	2020	NAVY	74	0	74																									74
✓	2	2020	FMS (‡)	14	0	14																									14
✓	**2**	**2020**	**Total OCO**	**88**	**0**	**88**																									**88**
1.1.3) All Up Round - Block II Plus (3)																															
	3	2017	NAVY	50	0	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	15
	3	2017	AF (‡)	50	0	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	15
	3	**2017**	**Total**	**100**	**0**	**100**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**30**
	3	2018	NAVY	12	0	12															A -	-	-	-	-	-	-	-	-	-	12
	3	2018	AF (‡)	75	0	75															A -	-	-	-	-	-	-	-	-	-	75
	3	2018	FMS (‡)	74	0	74															A -	-	-	-	-	-	-	-	-	-	74
	3	**2018**	**Total**	**161**	**0**	**161**															**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**161**
	3	2019	NAVY	8	0	8																	A -	-	-	-	-	-	-	-	8
	3	2019	AF (‡)	80	0	80																	A -	-	-	-	-	-	-	-	80
	3	2019	FMS (‡)	50	0	50																	A -	-	-	-	-	-	-	-	50
	3	**2019**	**Total**	**138**	**0**	**138**																	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**138**
✓	3	2020	NAVY	8	0	8																									8
✓	3	2020	AF (‡)	80	0	80																									80
✓	**3**	**2020**	**Total OCO**	**88**	**0**	**88**																									**88**
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2209 / Sidewinder	**Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

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) All Up Round - Block II (1)																															
Prior Years Deliveries: 444																															
	1	2016	NAVY	160	160	0																									0
	1	2016	ARMY (‡)	5	5	0																									0
	1	2016	AF (‡)	450	450	0																									0
	1	2016	FMS (‡)	64	64	0																									0
	1	**2016**	**Total**	**679**	**679**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2017	NAVY	70	46	24	4	4	4	4	4	4																			0
	1	2017	AF (‡)	160	60	100	10	14	15	26	15	20																			0
	1	2017	FMS (‡)	120	60	60	10	10	10	10	10	10																			0
	1	**2017**	**Total**	**350**	**166**	**184**	**24**	**28**	**29**	**40**	**29**	**34**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2018	NAVY	133	0	133	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	11	11	11	11	11	67
	1	2018	AF (‡)	180	0	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	15	15	15	90
	1	2018	FMS (‡)	431	0	431	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	36	36	36	36	36	215
	1	**2018**	**Total**	**744**	**0**	**744**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**62**	**62**	**62**	**62**	**62**	**62**	**372**
	1	2019	NAVY	227	0	227	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	227
	1	2019	AF (‡)	176	0	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176
	1	2019	FMS (‡)	176	0	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176
	1	**2019**	**Total**	**579**	**0**	**579**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**579**
✓	1	2019	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
✓	1	2020	NAVY	210	0	210					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210
✓	1	2020	AF (‡)	275	0	275					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	275
✓	1	2020	FMS (‡)	115	0	115					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115
✓	**1**	**2020**	**Total OCO**	**600**	**0**	**600**					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**600**
1.1.2) Captive Air Training Missile - Block II (2)																															
Prior Years Deliveries: 210																															
	2	2016	NAVY	47	47	0																									0
	2	2016	AF (‡)	81	81	0																									0
	2	2016	FMS (‡)	128	128	0																									0
	2	**2016**	**Total**	**256**	**256**	**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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2209 / Sidewinder | **Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

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	
	2	2017	NAVY	32	12	20	2	2	2	4	6	4																			0
	2	2017	AF (‡)	77	41	36	6	6	6	6	6	6																			0
	2	2017	FMS (‡)	98	49	49	8	8	8	8	8	9																			0
	2	**2017**	**Total**	**207**	**102**	**105**	**16**	**16**	**16**	**18**	**20**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	2	2018	NAVY	40	0	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	4	3	20
	2	2018	AF (‡)	64	0	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	6	5	5	6	32
	2	2018	FMS (‡)	76	0	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	6	7	6	6	38
	2	**2018**	**Total**	**180**	**0**	**180**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**14**	**15**	**15**	**16**	**15**	**15**	**90**
	2	2019	NAVY	75	0	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
	2	2019	FMS (‡)	76	0	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76
	2	**2019**	**Total**	**151**	**0**	**151**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**151**
✓	2	2020	NAVY	74	0	74					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74
✓	2	2020	FMS (‡)	14	0	14					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
✓	**2**	**2020**	**Total OCO**	**88**	**0**	**88**					**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**88**
1.1.3) All Up Round - Block II Plus (3)																															
	3	2017	NAVY	50	35	15	5	5	2	2	1																				0
	3	2017	AF (‡)	50	35	15	5	5	2	2	1																				0
	3	**2017**	**Total**	**100**	**70**	**30**	**10**	**10**	**4**	**4**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	3	2018	NAVY	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	6
	3	2018	AF (‡)	75	0	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	6	6	7	6	6	37
	3	2018	FMS (‡)	74	0	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	6	6	7	37
	3	**2018**	**Total**	**161**	**0**	**161**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**14**	**13**	**13**	**14**	**13**	**14**	**80**
	3	2019	NAVY	8	0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	3	2019	AF (‡)	80	0	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
	3	2019	FMS (‡)	50	0	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
	3	**2019**	**Total**	**138**	**0**	**138**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**138**
✓	3	2020	NAVY	8	0	8					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
✓	3	2020	AF (‡)	80	0	80					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
✓	**3**	**2020**	**Total OCO**	**88**	**0**	**88**					**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**88**
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2209 / Sidewinder | **Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

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) All Up Round - Block II (1)																															
Prior Years Deliveries: 444																															
	1	2016	NAVY	160	160	0																									0
	1	2016	ARMY (‡)	5	5	0																									0
	1	2016	AF (‡)	450	450	0																									0
	1	2016	FMS (‡)	64	64	0																									0
	1	**2016**	**Total**	**679**	**679**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2017	NAVY	70	70	0																									0
	1	2017	AF (‡)	160	160	0																									0
	1	2017	FMS (‡)	120	120	0																									0
	1	**2017**	**Total**	**350**	**350**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2018	NAVY	133	66	67	11	11	11	11	11	12																			0
	1	2018	AF (‡)	180	90	90	15	15	15	15	15	15																			0
	1	2018	FMS (‡)	431	216	215	36	36	35	36	36	36																			0
	1	**2018**	**Total**	**744**	**372**	**372**	**62**	**62**	**61**	**62**	**62**	**63**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2019	NAVY	227	0	227	-	-	18	19	19	19	19	19	19	19	19	19	19	19											0
	1	2019	AF (‡)	176	0	176	-	-	15	15	14	15	15	14	15	15	14	15	15	14											0
	1	2019	FMS (‡)	176	0	176	-	-	15	15	15	14	15	15	14	15	15	14	15	14											0
	1	**2019**	**Total**	**579**	**0**	**579**	-	-	**48**	**49**	**48**	**48**	**49**	**48**	**48**	**49**	**48**	**48**	**49**	**47**	-	-	-	-	-	-	-	-	-	-	**0**
✓	1	2019	NAVY	1	0	1	-	-	1																						0
✓	1	2020	NAVY	210	0	210	-	-	-	-	-	-	-	-	-	-	-	-	17	18	17	17	17	18	17	18	17	18	18	18	0
✓	1	2020	AF (‡)	275	0	275	-	-	-	-	-	-	-	-	-	-	-	-	24	24	24	24	24	23	23	23	23	23	23	17	0
✓	1	2020	FMS (‡)	115	0	115	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	10	5	0
✓	**1**	**2020**	**Total OCO**	**600**	**0**	**600**	-	-	-	-	-	-	-	-	-	-	-	-	**51**	**52**	**51**	**51**	**51**	**51**	**50**	**51**	**50**	**51**	**51**	**40**	**0**
1.1.2) Captive Air Training Missile - Block II (2)																															
Prior Years Deliveries: 210																															
	2	2016	NAVY	47	47	0																									0
	2	2016	AF (‡)	81	81	0																									0
	2	2016	FMS (‡)	128	128	0																									0
	2	**2016**	**Total**	**256**	**256**	**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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2209 / Sidewinder | **Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

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	
	2	2017	NAVY	32	32	0																									0
	2	2017	AF (‡)	77	77	0																									0
	2	2017	FMS (‡)	98	98	0																									0
	2	**2017**	**Total**	**207**	**207**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	2	2018	NAVY	40	20	20	3	4	4	3	3	3																			0
	2	2018	AF (‡)	64	32	32	5	5	6	5	5	6																			0
	2	2018	FMS (‡)	76	38	38	6	7	6	7	6	6																			0
	2	**2018**	**Total**	**180**	**90**	**90**	**14**	**16**	**16**	**15**	**14**	**15**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	2	2019	NAVY	75	0	75	-	-	6	7	6	6	7	6	6	7	6	6	6	6											0
	2	2019	FMS (‡)	76	0	76	-	-	6	6	7	6	6	7	6	6	7	6	6	7											0
	2	**2019**	**Total**	**151**	**0**	**151**	**-**	**-**	**12**	**13**	**13**	**12**	**13**	**13**	**12**	**13**	**13**	**12**	**12**	**13**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
✓	2	2020	NAVY	74	0	74	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	6	6	8	6	6	6	6	6	6	0
✓	2	2020	FMS (‡)	14	0	14	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	2	1	1	1	1	1	2	0
✓	**2**	**2020**	**Total OCO**	**88**	**0**	**88**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**7**	**7**	**7**	**7**	**7**	**10**	**7**	**7**	**7**	**7**	**7**	**8**	**0**
1.1.3) All Up Round - Block II Plus (3)																															
	3	2017	NAVY	50	50	0																									0
	3	2017	AF (‡)	50	50	0																									0
	3	**2017**	**Total**	**100**	**100**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	3	2018	NAVY	12	6	6	1	1	1	1	1	1																			0
	3	2018	AF (‡)	75	38	37	7	6	6	6	6	6																			0
	3	2018	FMS (‡)	74	37	37	6	6	6	6	6	7																			0
	3	**2018**	**Total**	**161**	**81**	**80**	**14**	**13**	**13**	**13**	**13**	**14**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	3	2019	NAVY	8	0	8	-	-	1	-	1	-	1	1	1	1	1	1	-	-											0
	3	2019	AF (‡)	80	0	80	-	-	6	7	7	6	7	7	6	7	7	6	7	7											0
	3	2019	FMS (‡)	50	0	50	-	-	5	4	4	4	4	4	5	4	4	4	4	4											0
	3	**2019**	**Total**	**138**	**0**	**138**	**-**	**-**	**12**	**11**	**12**	**10**	**12**	**12**	**12**	**12**	**12**	**11**	**11**	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
✓	3	2020	NAVY	8	0	8	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	1	-	1	1	-	-	1	0
✓	3	2020	AF (‡)	80	0	80	-	-	-	-	-	-	-	-	-	-	-	-	7	7	6	7	7	6	7	7	6	7	7	6	0
✓	**3**	**2020**	**Total OCO**	**88**	**0**	**88**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8**	**7**	**7**	**8**	**8**	**7**	**7**	**8**	**7**	**7**	**7**	**7**	**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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2209 / Sidewinder	**Item Number / Title [DODIC]:** 1 / SIDEWINDER BLOCK II

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 Missile Systems - Tucson, AZ	300	600	1,400	0	9	16	25	0	5	26	31
2	Raytheon Missile System - Tucson, AZ	300	600	1,400	0	9	13	22	0	5	26	31
3	Raytheon Missile System - Tucson, AZ	300	600	1,400	0	5	19	24	0	6	25	31

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2230 / JT Standoff Weapon (JSOW)

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

Line Item MDAP/MAIS Code: 000

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	5,168	-	-	-	-	-	-	100	150	250	500	6,168
Gross/Weapon System Cost *($ in Millions)*	2,269.761	5.487	1.330	0.000	0.000	0.000	0.000	64.300	85.100	122.800	261.228	2,810.006
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,269.761	5.487	1.330	0.000	0.000	0.000	0.000	64.300	85.100	122.800	261.228	2,810.006
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,269.761**	**5.487**	**1.330**	**0.000**	**0.000**	**0.000**	**0.000**	**64.300**	**85.100**	**122.800**	**261.228**	**2,810.006**
(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)*	225,514.51	-	-	-	-	-	-	613,710.00	540,313.33	466,464.00	491,840.00	270,819.23
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Joint Standoff Weapon (JSOW) is a joint United States Navy (USN)/United States Air Force (USAF) program with the USN as the lead service. The JSOW program provides an air-to-ground glide weapon (AGM-154) capable of attacking a variety of targets during day, night, and adverse weather conditions for use against fixed area targets and moving maritime targets. The JSOW enhances aircraft survivability as compared to alternate interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW Global Positioning System (GPS)/Inertial Navigation System (INS) capability allows several target kills per aircraft sortie.

The JSOW baseline BLU-97 variant (AGM-154A) has been integrated on USN (F/A-18C/D/E/F) and USAF (F-16C/D, B-2 and B-52) aircraft. The JSOW BLU-108 (AGM-154B) variant provides an anti-armor/tank capability. The JSOW unitary variant (AGM-154C) utilizes the common airframe of the AGM-154A and AGM-154B variants and incorporates an infrared uncooled seeker with autonomous targeting acquisition. The payload includes a 500 pound class Broach multi-stage warhead. AGM-154C was approved for Low Rate Initial Production (LRIP) on 26 June 2003. Full Rate Production (FRP) of the AGM-154C began in December 2004. A Network Enabled Weapon (NEW) moving maritime target capability has been incorporated in JSOW-C production units (AGM-154C-1 variant) starting with the FY 2009 procurement. The AGM-154-C-1 units retain the basic AGM-154C capability against fixed land targets.

JSOW Extended Range will include an engine avionics upgrade, and improved software to increase range greater than 200nm to kinetically engage adversary surface combatants and land targets at tactically significant ranges. Production of this configuration commences in FY 2022 and provides capacity to execute Navy operational plans.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2230 / JT Standoff Weapon (JSOW)

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

Line Item MDAP/MAIS Code: 000

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / AGM - 154 C-1				5,168 / 2,269.761	- / 5.487	- / 1.330	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**5,168 / 2,269.761**	**- / 5.487**	**- / 1.330**	**- / 0.000**	**- / 0.000**	**- / 0.000**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 - no funding required as Telemetry Instrumentation Kit (TIK) 2.0 component assembly certification will be complete.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2230 / JT Standoff Weapon (JSOW)	**Item Number / Title [DODIC]:** 1 / AGM - 154 C-1
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	5,168	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	2,269.761	5.487	1.330	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,269.761	5.487	1.330	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,269.761**	**5.487**	**1.330**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	439,195.24	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Flyaway - MISSILE Cost																		
Recurring Cost																		
1.1.1) (JS103) All UP ROUND (AUR)	325,099.22	3,185	1,035.441	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) (JS113) CONTRACTOR (DATA)	-	-	16.753	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.3) (JS240) PRODUCTION ACCEPTANCE TEST & EVAL	-	-	30.342	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.4) (JS090) ECO	-	-	56.586	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.5) (JS250) OBSOLESCENCE	-	-	26.337	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*1,165.459*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Flyaway - MISSILE Cost	**-**	**-**	***1,165.459***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - PROCUREMENT SUPPORT - MISSILE Cost																		
2.1) (JS593) COMMAND & LAUNCH /ST&E/ MISSION/SW	-	-	60.629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) (JS573) CONTAINERS (1)	-	-	36.995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3) (JS833) GIH PRODUCTION SUPPORT	-	-	87.140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2230 / JT Standoff Weapon (JSOW)	Item Number / Title [DODIC]: 1 / AGM - 154 C-1
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
2.4) (JS503) SPECIAL TOOLING & TEST EQUIPMENT (ST&TE)	-	-	72.013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5) (JS895) TELEMETRY	-	-	18.953	-	-	5.487	-	-	1.330	-	-	-	-	-	-	-	-	-
2.6) (JS980) PRODUCTION LINE SHUTDOWN	-	-	5.500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - PROCUREMENT SUPPORT - MISSILE Cost	**-**	**-**	***281.230***	**-**	**-**	***5.487***	**-**	**-**	***1.330***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - FLEET SUPPORT - MISSILE Cost																		
3.1) (JS973) INTEGRATED LOGISTICS SUPPORT (ILS)	-	-	6.779	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2) (JS300) CAPTIVE AIR TRAINING MISSILE (CATM)	-	-	12.068	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - FLEET SUPPORT - MISSILE Cost	**-**	**-**	***18.847***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - All Prior Years Cost																		
4.1) All Prior Years (2)	405,559.76	1,983	804.225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - All Prior Years Cost	**-**	**-**	***804.225***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**439,195.24**	**5,168**	**2,269.761**	**-**	**-**	**5.487**	**-**	**-**	**1.330**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Remarks:
Totals may not add due to rounding.

Footnotes:
(1) Ratio of Containers to JSOW-Extended Range 1:1
(2) Prior year values contain costs for all JSOW variants (AGM-154A, AGM-154B, AGM-154C, and AGM-154C-1).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2234 / Standard Missile

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

Line Item MDAP/MAIS Code: 000

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	681	125	125	-	125	125	135	135	145	200	429	2,100
Gross/Weapon System Cost *($ in Millions)*	2,811.149	491.260	490.210	0.000	488.312	488.312	610.836	672.603	664.645	902.917	2,234.618	9,366.550
Less PY Advance Procurement *($ in Millions)*	-	-	-	0.000	83.789	83.789	83.623	83.499	83.343	-	-	334.254
Net Procurement (P-1) *($ in Millions)*	2,811.149	491.260	490.210	0.000	404.523	404.523	527.213	589.104	581.302	902.917	2,234.618	9,032.296
Plus CY Advance Procurement *($ in Millions)*	-	-	125.683	0.000	96.085	96.085	66.696	45.790	-	-	-	334.254
Total Obligation Authority *($ in Millions)*	**2,811.149**	**491.260**	**615.893**	**0.000**	**500.608**	**500.608**	**593.909**	**634.894**	**581.302**	**902.917**	**2,234.618**	**9,366.550**
(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 Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	4,127.972	3,930.080	3,921.680	-	3,906.496	3,906.496	4,524.711	4,982.244	4,583.759	4,514.585	5,208.900	4,460.262

Description:

FY 2020 funding totals include $0.0M for Base and $500.608M for Overseas Contingency Operations (OCO); of which $500.608M and 125 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.
Prior Year (PY) Advance Procurement funding in the amount of $83.789M is an FY 2019 Base Requirement, but is reflected as OCO in this exhibit to show the Total Obligation Authority.

The SM-6 Block I provides an extended range engagement capability to provide the air superiority and the umbrella of protection for joint U.S. forces and allies against the full spectrum of manned-fixed and rotary-winged aircraft, unmanned aerial vehicles, and land attack and anti-ship cruise missiles in flight. This capability contributes significantly to the continuous protection of forward deployed ground maneuver forces as well as theater rear assets.

The SM-6 is the primary extended range air defense weapon for AEGIS cruisers and destroyers and potentially future combatants.

The program was approved for a five-year Multiyear Procurement beginning in FY 2019 and completing in FY 2023. Advance Procurement information is provided in exhibit 2234C.

The Accelerated Acquisition Board of Directors (AA BoD) met on 17 January 2018 and approved the designation of the SM-6 Block IB Phase IA as a Rapid Prototyping, Experimentation, and Demonstration (RPED) project. This designation acknowledged the requirement to expedite the development, acquisition, and fielding of the SM-6 Block IB to Naval Forces. The AA BoD met 9 November 2018 and directed SM-6 BLKIB to commence All Up Round prototyping (Phase IB).

SM-6 BLKIB funding begins in FY21. The SM-6 BLKIB program leverages existing missile technology and advanced missile technology. It aligns with the STANDARD Missile roadmap and takes advantage of the Navy's investment in the AEGIS Weapon System (AWS). This missile will provide an extended range capability for SM-6 and will be a key contributor to the protection of Joint U.S. Forces in support of the 2018 National Defense Strategy. SM-6 Block IB addresses valid Joint, Fleet, and Navy Urgent Operational Needs and existing JROC-approved requirements.

WIB MAT Project 1 also begins in FY21. Additional details are held at a higher classification.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2234 / Standard Missile	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 000		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / STANDARD MISSILE	P-5a, P-21			681 / 2,811.149	125 / 491.260	125 / 490.210	- / 0.000	125 / 488.312	125 / 488.312
P-40	**Total Gross/Weapon System Cost**				**681 / 2,811.149**	**125 / 491.260**	**125 / 490.210**	**- / 0.000**	**125 / 488.312**	**125 / 488.312**

*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:
SM-6 BLKI/IA: FY 2020 provides funding to procure 125 SM-6 Block I and SM-6 Block IA missiles to support warfighter requirements as well as required support costs such as production engineering, Diminishing Manufacturing Sources (DMS), containers, fleet documentation, and install/checkout equipment.

The budget reflects a funding profile for a five-year Multiyear Procurement beginning in FY 2019 and completing in FY 2023. Advance Procurement information is provided in exhibit 2234C (P10).

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**Item Number / Title [DODIC]:** 1 / STANDARD MISSILE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	681	125	125	-	125	125
Gross/Weapon System Cost *($ in Millions)*	2,811.149	491.260	490.210	0.000	488.312	488.312
Less PY Advance Procurement *($ in Millions)*	-	-	-	0.000	83.789	83.789
Net Procurement (P-1) *($ in Millions)*	2,811.149	491.260	490.210	0.000	404.523	404.523
Plus CY Advance Procurement *($ in Millions)*	-	-	125.683	0.000	96.085	96.085
Total Obligation Authority *($ in Millions)*	**2,811.149**	**491.260**	**615.893**	**0.000**	**500.608**	**500.608**
(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)*	4,127.972	3,930.080	3,921.680	-	3,906.496	3,906.496

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Hardware - SM-6 Cost																		
Recurring Cost																		
1.1.1) FE002 SM-6 Block I All Up Round Missile(†)	2,773.075	681	1,888.464	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) FE002 SM-6 Block IA ECP (1)	-	-	345.841	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile(†) (2)	-	-	-	3,355.896	125	419.487	3,331.056	125	416.382	-	-	0.000	3,294.640	125	411.830	3,294.640	125	411.830
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†) (3)	237.988	681	162.070	219.424	125	27.428	230.928	125	28.866	-	-	0.000	235.552	125	29.444	235.552	125	29.444
1.1.8) FE002 Production Start Up	-	-	28.102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*2,424.477*	-	-	*446.915*	-	-	*445.248*	-	-	*0.000*	-	-	*441.274*	-	-	*441.274*
Subtotal: Hardware - SM-6 Cost	**-**	**-**	***2,424.477***	**-**	**-**	***446.915***	**-**	**-**	***445.248***	**-**	**-**	***0.000***	**-**	**-**	***441.274***	**-**	**-**	***441.274***
Support - SM-6 Cost Cost																		
2.1) FE831 Production Engineering/Support	-	-	184.127	-	-	26.904	-	-	27.669	-	-	0.000	-	-	27.943	-	-	27.943
2.2) FE851 Component Improvement	-	-	93.930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2234 / Standard Missile	Item Number / Title [DODIC]: 1 / STANDARD MISSILE
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
2.3) FE851 Diminishing Manufacturing Sources (DMS) (4)	-	-	50.250	-	-	13.380	-	-	13.156	-	-	0.000	-	-	14.878	-	-	14.878
2.4) FE951 Tools and Test Equipment	-	-	13.968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5) FE958 Containers	-	-	1.591	-	-	0.228	-	-	0.232	-	-	0.000	-	-	0.236	-	-	0.236
2.6) FE981 ILS/Fleet Documentation	-	-	5.822	-	-	0.657	-	-	0.670	-	-	0.000	-	-	0.683	-	-	0.683
2.7) FE971 Install/ Checkout Equip/Training Material	-	-	35.881	-	-	3.176	-	-	3.235	-	-	0.000	-	-	3.298	-	-	3.298
Subtotal: Support - SM-6 Cost Cost	***-***	***-***	***385.569***	***-***	***-***	***44.345***	***-***	***-***	***44.962***	***-***	***-***	***0.000***	***-***	***-***	***47.038***	***-***	***-***	***47.038***
Support - Other Cost																		
3.1) WAXXX Acquisition Workforce Fund - 2009	-	-	1.103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Other Cost	***-***	***-***	***1.103***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
Gross/Weapon System Cost	**4,127.972**	**681**	**2,811.149**	**3,930.080**	**125**	**491.260**	**3,921.680**	**125**	**490.210**	**-**	**-**	**0.000**	**3,906.496**	**125**	**488.312**	**3,906.496**	**125**	**488.312**

(†) indicates the presence of a P-5a

Footnotes:

(1) Production cut-in decision for the Engineering Change Proposal (ECP) for the SM-6 Block IA configuration was included in the FY 2015 SM-6 Production Contract. The ECP cost line shown in FY 2017 is additional cost required to implement the ECP and procure the maximum number of SM-6 Block IA All Up Rounds (AURs), limited by maximum production rate. The Navy will procure SM-6 Block I and SM-6 Block IA missiles, not to exceed the quantities shown here. Further detail can be provided at a higher classification level. The SM-6 Block IA ECP will be at FRP procurement rates starting with the FY2018 procurement deliveries. Further detail can be provided at a higher classification level.

(2) FY 2018 combined cost code 1.1.1) FE002 SM-6 Block I All UP Round Missile and 1.1.2) FE002 SM-6 Block IA ECP into 1.1.3) SM-6 Block I/IA All Up Round Missile to provide the blended costs of the Block I and Block IA missiles. The Navy remains committed to procuring the maximum number of SM-6 Block IAs, limited by maximum production rate. The SM-6 Block IAs are more technologically advanced than the SM-6 Block I and therefore have higher unit cost. The budget reflects a funding profile for a five-year Multiyear Procurement beginning in FY 2019 and completing in FY 2023. Advance Procurement information is provided in exhibit 2234C.

(3) Canisters are not procured through the prime contractor and are not included in the Multiyear Procurement Contract. FY 2019 increase due to the mix of missiles being procured. Mod 3 Canisters are procured for both BLKI and BLKIA, but require additional cost for parts and engineering to convert the BLKI Mod 3 Canisters into BLKIA Mod 4 canisters. The increase in FY 2019 reflects the additional procurement of BLKIAs.

(4) FY 2019 to FY 2020 increase is due to obsolete parts/source volatility leading to increase in life-of-type procurements.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) FE002 SM-6 Block I All Up Round Missile(†)		2013	Raytheon CO . / Tucson, AZ	SS / FP	NAVSEA	Sep 2013	Apr 2015	89	2,762.551	Y		
1.1.1) FE002 SM-6 Block I All Up Round Missile(†)		2014	Raytheon CO .. / Tucson, AZ	SS / FP	NAVSEA	Jun 2014	Apr 2016	93	2,570.151	Y		
1.1.1) FE002 SM-6 Block I All Up Round Missile(†)		2015 (5)	Raytheon CO / Tucson AZ	SS / FP	NAVSEA	Apr 2015	Apr 2017	95	2,535.000	Y		
1.1.1) FE002 SM-6 Block I All Up Round Missile(†)		2016	Raytheon CO / Tucson AZ	SS / FP	NAVSEA	Apr 2016	Apr 2018	101	2,532.000	Y		
1.1.1) FE002 SM-6 Block I All Up Round Missile(†)		2017	Raytheon CO ... / Tucson AZ	SS / FP	NAVSEA	Apr 2018	Apr 2019	125	2,209.528	Y		
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile(†)		2018	Raytheon CO (6) / Tucson AZ	SS / FP	NAVSEA	Apr 2018	Apr 2020	117	3,327.504	Y		
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile(†)	✓	2018	Raytheon CO (6) / Tucson AZ	SS / FP	NAVSEA	Apr 2018	Apr 2020	8	3,771.125	Y		
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile(†)		2019	Raytheon CO (6) / Tucson AZ	SS / FP	NAVSEA	Apr 2019	Apr 2021	125	3,331.056	Y		
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile(†)	✓	2020	Raytheon CO (6) / Tucson AZ	SS / FP	NAVSEA	Apr 2020	Apr 2022	125	3,294.640	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)		2014	BAE-FY2014 / Minneapolis, MN	SS / FP	NAVSEA	Dec 2013	Aug 2015	93	216.553	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)		2015	BAE / Minneapolis, MN	SS / FP	NAVSEA	Mar 2015	May 2016	95	218.920	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)		2016	BAE / Minneapolis, MN	SS / FP	NAVSEA	Mar 2016	May 2017	101	253.099	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)		2017	BAE / Minneapolis, MN	SS / FP	NAVSEA	Mar 2017	May 2018	125	211.672	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)		2018	BAE / Minneapolis, MN	SS / FP	NAVSEA	Mar 2018	May 2019	117	216.342	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)	✓	2018	BAE / Minneapolis, MN	SS / FP	NAVSEA	Mar 2018	May 2019	8	264.500	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)		2019	TBD / TBD	SS / FP	NAVSEA	Mar 2019	May 2020	125	230.928	Y		
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4)(†)	✓	2020	TBD / TBD	SS / FP	NAVSEA	Mar 2020	May 2021	125	235.552	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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(†) indicates the presence of a P-21

Footnotes:

(5) Production cut-in decision for the Engineering Change Proposal (ECP) for the SM-6 Block IA configuration was included in the FY 2015 SM-6 Production Contract. The ECP cost line shown in FY17 is additional cost required to implement the ECP and procure the maximum number of SM-6 Block IA All Up Rounds (AURs), limited by maximum production rate. The Navy will procure SM-6 Block I and SM-6 Block IA missiles, not to exceed the quantities shown here. Further detail can be provided at a higher classification level.

(6) MSR reflects a ramp up to a stable production rate for SM-6 Block IA.

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
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Cost Elements (Units in Each)							Fiscal Year 2013												Fiscal Year 2014												BALANCE
										Calendar Year 2013												Calendar Year 2014									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2012	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) FE002 SM-6 Block I All Up Round Missile																															
Prior Years Deliveries: 178																															
	3	2013	NAVY	89	0	89												A -	-	-	-	-	-	-	-	-	-	-	-	-	89
	1	2014	NAVY	93	0	93																					A -	-	-	-	93
	2	2015	NAVY	95 (7)	0	95																									95
	2	2016	NAVY	101	0	101																									101
	4	2017	NAVY	125	0	125																									125
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile (2)																															
	5	2018	NAVY	117	0	117																									117
✓	5	2018	NAVY	8	0	8																									8
	5	2019	NAVY	125	0	125																									125
✓	5	2020	NAVY	125	0	125																									125
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4) (3)																															
Prior Years Deliveries: 267																															
	7	2014	NAVY	93	0	93															A -	-	-	-	-	-	-	-	-	-	93
	8	2015	NAVY	95	0	95																									95
	8	2016	NAVY	101	0	101																									101
	8	2017	NAVY	125	0	125																									125
	8	2018	NAVY	117	0	117																									117
✓	8	2018	NAVY	8	0	8																									8
	6	2019	NAVY	125	0	125																									125
✓	6	2020	NAVY	125	0	125																									125
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**Item Number / Title [DODIC]:** 1 / STANDARD MISSILE

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
							Calendar Year 2015												Calendar Year 2016												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	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) FE002 SM-6 Block I All Up Round Missile																															
Prior Years Deliveries: 178																															
	3	2013	NAVY	89	0	89	-	-	-	-	-	-	7	7	7	7	7	7	7	8	8	8	8	8							0
	1	2014	NAVY	93	0	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	7	8	8	8	48
	2	2015	NAVY	95 (7)	0	95							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95
	2	2016	NAVY	101	0	101																			A -	-	-	-	-	-	101
	4	2017	NAVY	125	0	125																									125
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile (2)																															
	5	2018	NAVY	117	0	117																									117
✓	5	2018	NAVY	8	0	8																									8
	5	2019	NAVY	125	0	125																									125
✓	5	2020	NAVY	125	0	125																									125
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4) (3)																															
Prior Years Deliveries: 267																															
	7	2014	NAVY	93	0	93	-	-	-	-	-	-	-	-	-	-	10	12	12	12	12	12	12	11							0
	8	2015	NAVY	95	0	95						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	8	8	8	56
	8	2016	NAVY	101	0	101																		A -	-	-	-	-	-	-	101
	8	2017	NAVY	125	0	125																									125
	8	2018	NAVY	117	0	117																									117
✓	8	2018	NAVY	8	0	8																									8
	6	2019	NAVY	125	0	125																									125
✓	6	2020	NAVY	125	0	125																									125
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**Item Number / Title [DODIC]:** 1 / STANDARD MISSILE

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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) FE002 SM-6 Block I All Up Round Missile																															
Prior Years Deliveries: 178																															
	3	2013	NAVY	89	89	0																									0
	1	2014	NAVY	93	45	48	8	8	8	8	8	8																			0
	2	2015	NAVY	95 (7)	0	95	-	-	-	-	-	-	7	8	8	8	8	8	8	8	8	8	8	8							0
	2	2016	NAVY	101	0	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	8	53
	4	2017	NAVY	125	0	125																			A -	-	-	-	-	-	125
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile (2)																															
	5	2018	NAVY	117	0	117																			A -	-	-	-	-	-	117
✓	5	2018	NAVY	8	0	8																			A -	-	-	-	-	-	8
	5	2019	NAVY	125	0	125																									125
✓	5	2020	NAVY	125	0	125																									125
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4) (3)																															
Prior Years Deliveries: 267																															
	7	2014	NAVY	93	93	0																									0
	8	2015	NAVY	95	39	56	8	8	8	8	8	8	8																		0
	8	2016	NAVY	101	0	101	-	-	-	-	-	-	-	7	8	8	8	8	8	9	9	9	9	9	9						0
	8	2017	NAVY	125	0	125						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	75
	8	2018	NAVY	117	0	117																		A -	-	-	-	-	-	-	117
✓	8	2018	NAVY	8	0	8																		A -	-	-	-	-	-	-	8
	6	2019	NAVY	125	0	125																									125
✓	6	2020	NAVY	125	0	125																									125
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**Item Number / Title [DODIC]:** 1 / STANDARD MISSILE

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) FE002 SM-6 Block I All Up Round Missile																															
Prior Years Deliveries: 178																															
	3	2013	NAVY	89	89	0																									0
	1	2014	NAVY	93	93	0																									0
	2	2015	NAVY	95 (7)	95	0																									0
	2	2016	NAVY	101	48	53	8	9	9	9	9	9																			0
	4	2017	NAVY	125	0	125	-	-	-	-	-	-	10	10	10	11	11	11	11	11	10	10	10	10							0
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile (2)																															
	5	2018	NAVY	117	0	117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	10	10	10	60
✓	5	2018	NAVY	8	0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	2
	5	2019	NAVY	125	0	125							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125
✓	5	2020	NAVY	125	0	125																			A -	-	-	-	-	-	125
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4) (3)																															
Prior Years Deliveries: 267																															
	7	2014	NAVY	93	93	0																									0
	8	2015	NAVY	95	95	0																									0
	8	2016	NAVY	101	101	0																									0
	8	2017	NAVY	125	50	75	10	10	11	11	11	11	11																		0
	8	2018	NAVY	117	0	117	-	-	-	-	-	-	-	9	9	9	10	10	10	10	10	10	10	10	10						0
✓	8	2018	NAVY	8	0	8	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1										0
	6	2019	NAVY	125	0	125						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	75
✓	6	2020	NAVY	125	0	125																		A -	-	-	-	-	-	-	125
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

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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) FE002 SM-6 Block I All Up Round Missile																															
Prior Years Deliveries: 178																															
	3	2013	NAVY	89	89	0																									0
	1	2014	NAVY	93	93	0																									0
	2	2015	NAVY	95 (7)	95	0																									0
	2	2016	NAVY	101	101	0																									0
	4	2017	NAVY	125	125	0																									0
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile (2)																															
	5	2018	NAVY	117	57	60	10	10	10	10	10	10																			0
✓	5	2018	NAVY	8	6	2	1	1																							0
	5	2019	NAVY	125	0	125	-	-	-	-	-	-	10	10	10	11	11	11	11	11	10	10	10	10							0
✓	5	2020	NAVY	125	0	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	11	11	11	62
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4) (3)																															
Prior Years Deliveries: 267																															
	7	2014	NAVY	93	93	0																									0
	8	2015	NAVY	95	95	0																									0
	8	2016	NAVY	101	101	0																									0
	8	2017	NAVY	125	125	0																									0
	8	2018	NAVY	117	117	0																									0
✓	8	2018	NAVY	8	8	0																									0
	6	2019	NAVY	125	50	75	10	10	11	11	11	11	11																		0
✓	6	2020	NAVY	125	0	125	-	-	-	-	-	-	-	10	10	10	10	10	10	10	11	11	11	11	11						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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**Item Number / Title [DODIC]:** 1 / STANDARD MISSILE

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) FE002 SM-6 Block I All Up Round Missile																															
Prior Years Deliveries: 178																															
	3	2013	NAVY	89	89	0																									0
	1	2014	NAVY	93	93	0																									0
	2	2015	NAVY	95 (7)	95	0																									0
	2	2016	NAVY	101	101	0																									0
	4	2017	NAVY	125	125	0																									0
1.1.3) FE002 SM-6 Block I/IA All Up Round Missile (2)																															
	5	2018	NAVY	117	117	0																									0
✓	5	2018	NAVY	8	8	0																									0
	5	2019	NAVY	125	125	0																									0
✓	5	2020	NAVY	125	63	62	11	11	10	10	10	10																			0
1.1.6) FE002 Canister - SM-6 Block I/IA (Mk 21 Mod 3/Mod 4) (3)																															
Prior Years Deliveries: 267																															
	7	2014	NAVY	93	93	0																									0
	8	2015	NAVY	95	95	0																									0
	8	2016	NAVY	101	101	0																									0
	8	2017	NAVY	125	125	0																									0
	8	2018	NAVY	117	117	0																									0
✓	8	2018	NAVY	8	8	0																									0
	6	2019	NAVY	125	125	0																									0
✓	6	2020	NAVY	125	125	0																									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

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MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 CO .. - Tucson, AZ	125	125	125	3	3	22	25	3	3	22	25
2	Raytheon CO - Tucson AZ	125	125	125	3	3	24	27	3	3	24	27
3	Raytheon CO . - Tucson, AZ	125	125	125	3	3	19	22	3	3	19	22
4	Raytheon CO ... - Tucson AZ	125	125	125	3	3	12	15	3	3	12	15
5	Raytheon CO (6) - Tucson AZ	125	125	200	3	3	24	27	3	3	24	27
6	TBD - TBD	125	125	200	3	8	14	22	3	8	14	22
7	BAE-FY2014 - Minneapolis, MN	125	125	200	3	8	20	28	3	8	20	28
8	BAE - Minneapolis, MN	125	125	200	3	8	14	22	3	8	14	22

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:

(6) MSR reflects a ramp up to a stable production rate for SM-6 Block IA.

(7) Production cut-in decision for the Engineering Change Proposal (ECP) for the SM-6 Block IA configuration was included in the FY 2015 SM-6 Production Contract. The ECP cost line shown in FY 2017 is additional cost required to implement the ECP and procure the maximum number of SM-6 Block IA All Up Rounds (AURs), limited by maximum production rate. The Navy will procure SM-6 Block I and SM-6 Block IA missiles, not to exceed the quantities shown here. Further detail can be provided at a higher classification level.

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Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2234 / Standard Missile
Program Elements for Code B Items: N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 000	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Gross/Weapon System Cost *($ in Millions)*	-	-	125.683	0.000	96.085	96.085	66.696	45.790	-	-	-	334.254
Net Procurement (P-1) *($ in Millions)*	-	-	125.683	0.000	96.085	96.085	66.696	45.790	-	-	-	334.254
Total Obligation Authority *($ in Millions)*	**-**	**-**	**125.683**	**0.000**	**96.085**	**96.085**	**66.696**	**45.790**	**-**	**-**	**-**	**334.254**

Description:

FY 2020 funding totals include $0.0M for Base and $96.085M for Overseas Contingency Operations (OCO); of which $96.085M and 125 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The SM-6 Block I provides an extended range engagement capability to provide the air superiority and the umbrella of protection for joint U.S. forces and allies against the full spectrum of manned-fixed and rotary-winged aircraft, unmanned aerial vehicles, and land attack and anti-ship cruise missiles in flight. This capability contributes significantly to the continuous protection of forward deployed ground maneuver forces as well as theater rear assets. The SM-6 is the primary extended range air defense weapon for AEGIS cruisers and destroyers and potentially future combatants.

Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2234 / Standard Missile
Program Elements for Code B Items: N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 000	

Exhibits Schedule				Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	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-10	1 / STANDARD MISSILE			681 / -	125 / -	125 / 125.683	- / 0.000	125 / 96.085	125 / 96.085
P-40	**Total Gross/Weapon System Cost**			**681 / -**	**125 / -**	**125 / 125.683**	**- / 0.000**	**125 / 96.085**	**125 / 96.085**

*Title represents the P-10 Title for Advance Procurement.

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

Justification:

The budget reflects a funding profile for a five-year Multiyear Procurement beginning in FY 2019 and completing in FY 2023. The multiyear procurement contracts provide for the procurement of up to 625 Standard Missile-6 (SM-6) guided missiles. The use of Advanced Procurement provides Economic Order Quantity (EOQ)to reduce the cost of subcontractor effort, material, and components enabling greater production efficiencies and substantial cost savings.

Funding covers EOQ in support of the FY 2019-2023 MYP contract. EOQ will fund the procurement of MK72 Booster, MK104 Dual Thrust Rocket Motors (DTRM) and Guidance Sections. Booster is a 26 month lead time due to the unique steel for the case and additional time for mating with a (TVA) Thrust Vector Actuator. The DTRM has a 22 month lead time due to the specialty steel required for manufacturing. The guidance section takes 24 months to deliver due to the lead time in the specialty Circuit Card Assemblies.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**P-5 Number / Title:** 1 / STANDARD MISSILE

First System (2020) Award Date:	First System (2020) Completion Date:	Interval Between Systems:
January 2013	January 2013	0 Months

STANDARD MISSILE	Production Leadtime (Months)	Prior Years (Each)	FY 2018 (Each)	FY 2019 (Each)	FY 2020 (Each)
Quantity		681	125	125	125

Cost Elements	When Required (Months)	Prior Years ($ M)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)
CFE					
FY20 EOQ	0	-	-	83.789	-
FY21 EOQ	0	-	-	25.087	58.536
FY22 EOQ	0	-	-	16.807	20.841
FY23 EOQ	0	-	-	-	16.708
Total: CFE		-	-	*125.683*	*96.085*
Total Advance Procurement/Obligation Authority		**-**	**-**	**125.683**	**96.085**

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2234 / Standard Missile	**P-5 Number / Title:** 1 / STANDARD MISSILE

Cost Elements	QPA (Each)	FY 2020					
		Production Leadtime (Months)	Unit Cost ($ K)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request ($ M)
CFE							
FY20 EOQ	0						-
FY21 EOQ	0						58.536
FY22 EOQ	0						20.841
FY23 EOQ	0						16.708
Total: CFE							*96.085*
Total Advance Procurement/Obligation Authority							**96.085**

Description:
The Advance Procurement (AP) funding provides Economic Order Quantity (EOQ) to reduce the cost of subcontractor effort, material, and components enabling greater production efficiencies and substantial cost.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2238 / Small Diameter Bomb II (SDB II)

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0204162N	Other Related Program Elements: 0604329N

Line Item MDAP/MAIS Code: 439

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	90	750	-	750	750	750	750	750	750	410	5,000
Gross/Weapon System Cost *($ in Millions)*	0.000	20.968	91.272	0.000	118.466	118.466	114.710	116.981	119.455	121.840	74.439	778.131
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	20.968	91.272	0.000	118.466	118.466	114.710	116.981	119.455	121.840	74.439	778.131
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**20.968**	**91.272**	**0.000**	**118.466**	**118.466**	**114.710**	**116.981**	**119.455**	**121.840**	**74.439**	**778.131**
(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)*	-	232,977.78	121,696.00	-	157,954.67	157,954.67	152,946.67	155,974.67	159,273.33	162,453.33	181,558.54	155,626.20

Description:

FY 2020 funding totals include $0.0M for Base and $118.466M for Overseas Contingency Operations (OCO); of which $118.466M and 750 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Small Diameter Bomb Increment II (SDB II) is an ACAT 1C program providing the warfighter a capability to attack mobile targets in all weather. The Air Force (USAF) is the lead service. The SDB II increases joint lethality in contested environments. The SDB can strike a diverse set of targets inside an adversary's air and missile defense networks to destroy mobile platforms through the weather. With increased loadout, range, and munitions effect the network enabled SDBII enhances close combat lethality in complex terrain.

Threshold aircraft is the F-15E for the USAF and F-35B and F-35C for the Department of Navy (DON). Objective aircraft include the F/A-22, B-1, B2, F-117, F-16, B-52, Predator B, F/A-18 E/F. Milestone C was achieved June 2015.

The Acquisition Decision Memorandum was signed 4 June 2015. Lots 1 through 3 are Air Force only procurements; Lot 1 awarded 12 June 2015. SDB II will be integrated on F-35B and F-35C using BRU-61 (due to the cancellation of the Joint Miniature Munitions Bomb Rack contract), and on F/A-18 E/F using BRU-55. The F/A-18 E/F Initial Operational Capability (IOC) is planned for FY 2020; F-35 IOC is planned for FY 2022. The total planned SDB II procurement is 17,000 weapons; 12,000 for the AF and 5,000 for the DoN.

Funds may be used to resolve production DMS/MS/Obsolescence issues through studies, bridge buys, life of type buys, supplier/parts replacement and qualification activities to preserve future production capabilities and capacities.

[P5 / All Up Round (AUR)]: Lots 1-5 (FY 2018 and FY 2019) are competitively priced options to the SDB II EMD contract. Lots 6-11 will be awarded under sole source contract, therefore, prices will be higher.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2238 / Small Diameter Bomb II (SDB II)	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 0204162N	**Other Related Program Elements:** 0604329N
Line Item MDAP/MAIS Code: 439		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Small Diameter Bomb II (SDB II)	P-5a, P-21			- / 0.000	90 / 20.968	750 / 91.272	- / 0.000	750 / 118.466	750 / 118.466
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**90 / 20.968**	**750 / 91.272**	**- / 0.000**	**750 / 118.466**	**750 / 118.466**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 provides funding to procure 750 SDB II All Up Rounds (AUR) to support warfighter requirements as well as containers, Government In-house (GIH) production support, software updates, weapon load crew trainers (WLCT), special tooling, test equipment, peculiar support equipment, and integrated logistics support.

Current contract for Production Lots/Service includes the following:
Lot 1 - USAF (144)
Lot 2 - USAF (250)
Lot 3 - USAF (312)
Lot 4 - USAF (570) / USN (90)
Lot 5 - USAF (510) / USN (750)

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2238 / Small Diameter Bomb II (SDB II)	**Item Number / Title [DODIC]:** 1 / Small Diameter Bomb II (SDB II)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	90	750	-	750	750
Gross/Weapon System Cost *($ in Millions)*	0.000	20.968	91.272	0.000	118.466	118.466
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	20.968	91.272	0.000	118.466	118.466
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**20.968**	**91.272**	**0.000**	**118.466**	**118.466**
(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)*	-	232,977.78	121,696.00	-	157,954.67	157,954.67

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - SDBII Cost																		
Recurring Cost																		
1.1.1) All Up Round (AUR)(†) (1)	-	-	-	114,455.56	90	10.301	106,353.33	750	79.765	-	-	0.000	143,517.33	750	107.638	143,517.33	750	107.638
Subtotal: Recurring Cost	-	-	-	-	-	*10.301*	-	-	*79.765*	-	-	*0.000*	-	-	*107.638*	-	-	*107.638*
Subtotal: Hardware - SDBII Cost	**-**	**-**	**-**	**-**	**-**	***10.301***	**-**	**-**	***79.765***	**-**	**-**	***0.000***	**-**	**-**	***107.638***	**-**	**-**	***107.638***
Hardware - Nonrecurring and Ancillary Equip Cost																		
Non Recurring Cost																		
2.1.1) Containers (2)	-	-	-	-	-	0.369	-	-	2.673	-	-	0.000	-	-	2.570	-	-	2.570
Subtotal: Non Recurring Cost	-	-	-	-	-	*0.369*	-	-	*2.673*	-	-	*0.000*	-	-	*2.570*	-	-	*2.570*
Subtotal: Hardware - Nonrecurring and Ancillary Equip Cost	**-**	**-**	**-**	**-**	**-**	***0.369***	**-**	**-**	***2.673***	**-**	**-**	***0.000***	**-**	**-**	***2.570***	**-**	**-**	***2.570***
Support - Procurement Support Cost																		
3.1) GIH Production Support (3)	-	-	-	-	-	-	-	-	2.861	-	-	0.000	-	-	2.855	-	-	2.855
3.2) Special Tooling & Test Equipment (4)	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.938	-	-	0.938
3.3) Software Updates (5)	-	-	-	-	-	0.713	-	-	1.546	-	-	0.000	-	-	0.757	-	-	0.757
Subtotal: Support - Procurement Support Cost	**-**	**-**	**-**	**-**	**-**	***0.713***	**-**	**-**	***4.407***	**-**	**-**	***0.000***	**-**	**-**	***4.550***	**-**	**-**	***4.550***
Support - Fleet Support Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2238 / Small Diameter Bomb II (SDB II)	Item Number / Title [DODIC]: 1 / Small Diameter Bomb II (SDB II)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
4.1) Weapon Load Crew Trainers (WLCT)	-	-	-	-	-	1.459	-	-	0.736	-	-	-	-	-	-	-	-	-
4.2) Practical EOD Systems Trainers (PESTs)	-	-	-	-	-	0.319	-	-	-	-	-	-	-	-	-	-	-	-
4.3) Integrated Logistics Support (ILS)	-	-	-	-	-	1.115	-	-	1.137	-	-	0.000	-	-	1.161	-	-	1.161
4.4) Peculiar Support Equipment	-	-	-	-	-	6.692	-	-	2.554	-	-	0.000	-	-	2.547	-	-	2.547
Subtotal: Support - Fleet Support Cost	***-***	***-***	***-***	***-***	***-***	***9.585***	***-***	***-***	***4.427***	***-***	***-***	***0.000***	***-***	***-***	***3.708***	***-***	***-***	***3.708***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**232,977.78**	**90**	**20.968**	**121,696.00**	**750**	**91.272**	**-**	**-**	**0.000**	**157,954.67**	**750**	**118.466**	**157,954.67**	**750**	**118.466**

(†) indicates the presence of a P-5a

Footnotes:

(1) Cost Element 1.1.1 (AUR) Lots 1-5 (FY 2018 and FY 2019) are competitively priced options to the SDB II EMD contract. Lots 6-11 will be awarded under sole source contract, therefore, prices will be higher. FY 2020 (Lot 6) unit cost will be higher than Lot 7 due to the first year of procurement under the new sole source contract. Reduction in unit cost is anticipated in FY 2021 (Lot 7), then follow inflation increase from FY 2021 and beyond.

(2) Cost Element 2.1.1 (Containers) The Department of the Navy is buying two-place containers. One container is required for every two SDB II weapons and every two Weapon Load Crew Trainers. As quantity of SDB II increases, so will total cost for containers. Cost reflected is the total cost for these containers. Lots 1-5 (FY 2018 and FY 2019) are competitively priced options to the SDB II EMD contract. Lots 6-11 will be awarded under sole source contract, therefore, prices will be higher. FY 2020 (Lot 6) costs will be higher than Lot 7 due to the first year of procurement under the new sole source contract. Reduction in unit cost is anticipated in FY 2021 (Lot 7), then follow inflation increases from FY 2021 and beyond.

(3) Cost Element 3.1 Government In-House (GIH) Production support is government labor in support of the production of the All Up Round to include engineering and logistics.

(4) Cost Element 3.2 Special Tooling is required to bring Raytheon Missile Systems to Full Rate Capacity. This cost is being shared by the DoN and USAF based on the total program of record quantities.

(5) Cost Element 3.3 Software updates will be made one year, with weapon Operational Flight Plan (OFP) updates on the opposite year.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2238 / Small Diameter Bomb II (SDB II)	Item Number / Title [DODIC]: 1 / Small Diameter Bomb II (SDB II)

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) All Up Round (AUR)(†)		2018	Raytheon CO / Tucson AZ	C / FPIF	Eglin AFB, FL	Jan 2018	Jul 2019	90	114,455.56	Y		
1.1.1) All Up Round (AUR)(†)		2019 (6)	Raytheon CO / Tucson AZ	C / FPIF	Eglin AFB, FL	Jan 2019	Jul 2020	750	106,353.33	Y		
1.1.1) All Up Round (AUR)(†)	✓	2020 (7)	Raytheon CO / Tucson AZ	C / TBD	Eglin AFB, FL	Jan 2020	Jul 2021	750	143,517.33	N	Aug 2019	

(†) indicates the presence of a P-21

Footnotes:

(6) Raytheon Missile Systems, Tucson, AZ is the prime contractor for this effort. FY 2019 is Lot 5; Lots 1-3 are Air Force only procurements.

(7) Raytheon Missile Systems, Tucson, AZ is the prime contractor for this effort. FY 2020 is Lot 6; Lots 1-3 are Air Force only procurements.

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2

P-1 Line Item Number / Title: 2238 / Small Diameter Bomb II (SDB II)

Item Number / Title [DODIC]: 1 / Small Diameter Bomb II (SDB II)

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) All Up Round (AUR) (1)																															
	1	2018	NAVY	90	0	90				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	60
	1	2018	AF (‡)	460	0	460				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39	39	39	343
	1	**2018**	**Total**	**550**	**0**	**550**				**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**49**	**49**	**49**	**403**
	1	2019	NAVY	750	0	750																A -	-	-	-	-	-	-	-	-	750
	1	2019	AF (‡)	480	0	480																A -	-	-	-	-	-	-	-	-	480
	1	**2019**	**Total**	**1,230**	**0**	**1,230**																**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,230**
✓	1	2020	NAVY	750	0	750																									750
✓	1	2020	AF (‡)	696	0	696																									696
✓	**1**	**2020**	**Total OCO**	**1,446**	**0**	**1,446**																									**1,446**
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2238 / Small Diameter Bomb II (SDB II)	**Item Number / Title [DODIC]:** 1 / Small Diameter Bomb II (SDB II)

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) All Up Round (AUR) (1)																															
	1	2018	NAVY	90	30	60	10	10	10	10	10	10	-	-	-																0
	1	2018	AF (‡)	460	117	343	39	39	39	39	39	39	39	39	31																0
	1	**2018**	**Total**	**550**	**147**	**403**	**49**	**49**	**49**	**49**	**49**	**49**	**39**	**39**	**31**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2019	NAVY	750	0	750	-	-	-	-	-	-	-	-	-	62	62	62	62	62	62	63	63	63	63	63	63				0
	1	2019	AF (‡)	480	0	480	-	-	-	-	-	-	-	-	-	25	25	43	43	43	43	43	43	43	43	43	43				0
	1	**2019**	**Total**	**1,230**	**0**	**1,230**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**87**	**87**	**105**	**105**	**105**	**105**	**106**	**106**	**106**	**106**	**106**	**106**	**-**	**-**	**-**	**0**
✓	1	2020	NAVY	750	0	750				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	62	62	564
✓	1	2020	AF (‡)	696	0	696				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	37	62	554
✓	**1**	**2020**	**Total OCO**	**1,446**	**0**	**1,446**				**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**105**	**99**	**124**	**1,118**
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2238 / Small Diameter Bomb II (SDB II) | **Item Number / Title [DODIC]:** 1 / Small Diameter Bomb II (SDB II)

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) All Up Round (AUR) (1)																															
	1	2018	NAVY	90	90	0																									0
	1	2018	AF (‡)	460	460	0																									0
	1	**2018**	**Total**	**550**	**550**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2019	NAVY	750	750	0																									0
	1	2019	AF (‡)	480	480	0																									0
	1	**2019**	**Total**	**1,230**	**1,230**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
✓	1	2020	NAVY	750	186	564	62	62	62	62	62	62	64	64	64																0
✓	1	2020	AF (‡)	696	142	554	62	62	62	62	62	61	61	61	61																0
✓	**1**	**2020**	**Total OCO**	**1,446**	**328**	**1,118**	**124**	**124**	**124**	**124**	**124**	**123**	**125**	**125**	**125**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2238 / Small Diameter Bomb II (SDB II)	**Item Number / Title [DODIC]:** 1 / Small Diameter Bomb II (SDB II)

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 CO - Tucson AZ	1,346	1,925	2,119	0	4	18	22	0	4	18	22

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	1,685	120	108	-	120	120	120	120	120	120	Continuing	Continuing
Gross/Weapon System Cost *($ in Millions)*	1,227.716	106.587	96.221	0.000	106.765	106.765	108.562	113.179	107.688	112.248	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,227.716	106.587	96.221	0.000	106.765	106.765	108.562	113.179	107.688	112.248	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,227.716**	**106.587**	**96.221**	**0.000**	**106.765**	**106.765**	**108.562**	**113.179**	**107.688**	**112.248**	**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)*	728,614.84	888,225.00	890,935.19	-	889,708.33	889,708.33	904,683.33	943,158.33	897,400.00	935,400.00	Continuing	Continuing

Description:

FY 2020 funding totals include $0.0M for Base and $106.765M for Overseas Contingency Operations (OCO); of which $106.765M and 120 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Rolling Airframe Missile (RAM) is a high fire-power missile system used to defeat Anti-Ship Cruise Missiles (ASCMs), as well as other airborne threats. RAM is a surface-to-air missile with passive dual-mode radio frequency/infrared (RF/IR) guidance and an active-optical proximity and contact fuse. RAM has minimal shipboard control systems and is autonomous after launch. Effective against a wide spectrum of existing threats, RAM Block 1 IR upgrade incorporates IR "all-the-way-homing" to improve performance against evolving passive and active ASCMs. RAM Block 2 provides increased kinematic capability against highly maneuvering threats and improved RF detection against low probability of intercept threats. The RAM missile is fired from a RAM Guided Missile Launching System (GMLS) (MK-49), which holds 21 RAM rounds. RAM is also fired from the SeaRAM Anti-Ship Missile Defense System (MK-15 MOD 31-33) which holds 11 rounds.

COOPERATIVE AGREEMENTS:

RAM is a cooperative program with the Federal Republic of Germany. The U.S. and Federal Republic of Germany cooperatively produce Block 1 missiles, launchers, and Ordnance Alterations (ORDALTs) through the Block 1 production Memorandum Of Agreement (MOA), Amendment 2 signed on 28 September 2010. The Block 2 production Memorandum of Understanding (MOU) was signed on 19 March 2013 with the U.S and Federal Republic of Germany to cooperatively produce Block 2 missiles, launchers, and ORDALTs. Amendment 1 to the Block 2 Memorandum of Understanding (MOU) is currently being staffed with the U.S and Federal Republic of Germany to cooperatively produce Block 2 missiles, launchers, and ORDALTs and continue to provide support for Block 1 configuration through FY 2022.

[P5 / EF008 Block 2 Missile]: Warhead is the explosive component that is activated by the target detector upon detection of the incoming anti ship cruise missile.

[P5 / EF008 BLK 2 GMRP ORDALTS]: Block 2 GMRP Ordalts utilize common components from Block 1A returning from the Fleet. Deliveries have the same capabilities as new build Block 2.

[P5 / EF008 Telemeters]: Telemeter sections are necessary for Fleet training and operational test events to collect data and conduct performance analysis.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P5 / EF850 Component Improvement/DMS]: Provides RAM Design Agent engineering and technical support for component replacement and improvement. The RAM Guided Missile Round Pack (GMRP) is a build to print missile that includes commercial-off-the-shelf hardware. Support includes the development/review/approval/verification of production engineering change proposals and obsolescence mitigation efforts. This support is required to ensure that the build to print package continues to support the system performance specs as production matures. Funding also supports replacement of key components due to end of lifetime buy.

[P5 / EF850 Componenet Improvement]: Provides RAM Design Agent engineering and technical support for component replacement and improvement. The RAM Guided Missile Round Pack (GMRP) is a build to print missile that includes commercial-off-the-shelf hardware. Support includes the development/review/approval/verification of production engineering change proposals and obsolescence mitigation efforts. This support is required to ensure that the build to print package continues to support the system performance specs as production matures.

[P5 / EF957 Containers]: Procures containers for transporting the GMRP.

[P5 / EF830 Production Support]: Provides critical engineering and technical support of the production line and production test equipment. Efforts include the technical investigation and resolution of production issues, control and maintenance of the technical data package, resolution of test equipment issues, configuration management, reliabilty assessments, and safety. Production support is an annual requirement which supports all on-going production and is independent of contract award quantities.

[P5 / EF830 Production Support Contractor Engineering]: Provides critical engineering and technical support of the production line and production test equipment. Efforts include the technical investigation and resolution of production issues, control and maintenance of the technical data package, resolution of test equipment issues, configuration management, reliabilty assessments, and safety. Production support is an annual requirement which supports all on-going production and is independent of contract award quantities.

[P5 / EF830 Production Support Gov In-House Engineering]: Provides critical engineering and technical support of the production line and production test equipment. Efforts include the technical investigation and resolution of production issues, control and maintenance of the technical data package, resolution of test equipment issues, configuration management, reliabilty assessments, and safety. Production support is an annual requirement which supports all on-going production and is independent of contract award quantities.

[P5 / EF860 Product Acceptance]: Funds field activity product acceptance efforts.

[P5 / EF974 ILS]: Funds Integrated Logistics Support (ILS) efforts in support of production.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Rolling Airframe Missile (RAM)	P-5a, P-21			1,685 / 1,227.716	120 / 106.587	108 / 96.221	- / 0.000	120 / 106.765	120 / 106.765
P-40	**Total Gross/Weapon System Cost**				**1,685 / 1,227.716**	**120 / 106.587**	**108 / 96.221**	**- / 0.000**	**120 / 106.765**	**120 / 106.765**

*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:
FY20 - Due to lower than projected FY19 Foreign Military Sales procurement quantities, the program was unable to reach the anticipated USN procurement quantity of 120 missiles in FY2019. Instead the FY19 quantity based on the current US/FMS quantities and negotiated FY19 contract pricing is expected to be 108. The budget increased from FY2019 to FY2020 to reflect hardware funding to support a procurement of 120 missiles. The hardware budget in FY2020 more accurately reflects the cost of 120 missiles.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	1,685	120	108	-	120	120
Gross/Weapon System Cost *($ in Millions)*	1,227.716	106.587	96.221	0.000	106.765	106.765
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,227.716	106.587	96.221	0.000	106.765	106.765
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,227.716**	**106.587**	**96.221**	**0.000**	**106.765**	**106.765**
(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)*	728,614.84	888,225.00	890,935.19	-	889,708.33	889,708.33

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - EF001 Block 1 Missile Cost																		
Recurring Cost																		
1.1.1) EF001 G&C	406,217.21	1,197	486.242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) EF001 Propulsion	14,114.29	140	1.976	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.3) EF001 Safe and Arm Device	3,407.14	140	0.477	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.4) EF001 Ordance Pack	26,600.00	140	3.724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.5) EF001 Warhead	11,221.43	140	1.571	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.6) EF001 Canisters	46,371.43	140	6.492	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.7) EF001 Block 1 GMRP ORDALTS	216,706.67	450	97.518	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*598.000*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF001 Block 1 Missile Cost	**-**	**-**	***598.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - EF002 Propulsion Cost																		
Recurring Cost																		
2.1.1) EF002 Propulsion	-	-	12.364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*12.364*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF002 Propulsion Cost	**-**	**-**	***12.364***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - EF004 Safe and Arm Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2242 / Rolling Airframe Missile (RAM)	Item Number / Title [DODIC]: 1 / Rolling Airframe Missile (RAM)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Recurring Cost																		
3.1.1) EF004 Safe & Arm Device	-	-	2.103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*2.103*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF004 Safe and Arm Cost	**-**	**-**	***2.103***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - EF005 Ordnance Pack Cost																		
Recurring Cost																		
4.1.1) EF005 Ordnance Pack	-	-	28.251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*28.251*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF005 Ordnance Pack Cost	**-**	**-**	***28.251***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - EF006 Warhead Cost																		
Recurring Cost																		
5.1.1) EF006 Warhead	-	-	7.174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*7.174*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF006 Warhead Cost	**-**	**-**	***7.174***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - EF007 Canister Cost																		
Recurring Cost																		
6.1.1) EF007 Canister	-	-	32.031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*32.031*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF007 Canister Cost	**-**	**-**	***32.031***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - EF008 Block 2 Missile Cost																		
Recurring Cost																		
7.1.1) EF008 G&C(†)	532,370.90	488	259.797	525,973.57	120	63.117	603,898.14	108	65.221	-	-	0.000	536,484.71	120	64.378	536,484.71	120	64.378
7.1.2) EF008 Propulsion(†)	73,639.34	488	35.936	73,973.57	120	8.877	73,556.90	108	7.944	-	-	0.000	75,444.71	120	9.053	75,444.71	120	9.053
7.1.3) EF008 Safe and Arm Device(†) (1)	10,368.85	488	5.060	6,000.00	115	0.690	6,000.00	108	0.648	-	-	0.000	6,125.00	120	0.735	6,125.00	120	0.735
7.1.4) EF008 Ordnance Pack(†) (2)	50,377.05	488	24.584	47,008.69	115	5.406	47,008.69	108	5.077	-	-	0.000	48,031.80	120	5.764	48,031.80	120	5.764
7.1.5) EF008 Warhead(†) (3)	22,858.61	488	11.155	21,310.16	187	3.985	-	-	-	-	-	0.000	22,727.54	120	2.727	22,727.54	120	2.727

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2242 / Rolling Airframe Missile (RAM)	Item Number / Title [DODIC]: 1 / Rolling Airframe Missile (RAM)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
7.1.6) EF008 Canister(†)	50,155.74	488	24.476	53,042.00	120	6.365	52,977.87	108	5.722	-	-	0.000	54,101.85	120	6.492	54,101.85	120	6.492
7.1.7) EF008 BLK 2 GMRP ORDALTS(†) (4)	-	-	-	576,665.00	12	6.920	-	-	-	-	-	0.000	609,837.00	9	5.489	609,837.00	9	5.489
7.1.8) EF008 Telemeters(†)	32,618.56	97	3.164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.1.9) EF008 Transportation	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*364.187*	-	-	*95.360*	-	-	*84.612*	-	-	*0.000*	-	-	*94.638*	-	-	*94.638*
Non Recurring Cost																		
7.2.1) EF008 BLK 2B HUM(†)	-	-	-	2,258K	1	2.258	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	-	-	-	*2.258*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - EF008 Block 2 Missile Cost	**-**	**-**	***364.187***	**-**	**-**	***97.618***	**-**	**-**	***84.612***	**-**	**-**	***0.000***	**-**	**-**	***94.638***	**-**	**-**	***94.638***
Hardware - EF850 Component Improvement/DMS Cost																		
Recurring Cost																		
8.1.1) EF850 Componenet Improvement (5)	-	-	70.146	-	-	1.408	-	-	1.534	-	-	0.000	-	-	1.853	-	-	1.853
8.1.2) EF850 Diminishing Manufacturing Sources (6)	-	-	13.901	-	-	0.417	-	-	2.511	-	-	0.000	-	-	2.561	-	-	2.561
Subtotal: Recurring Cost	-	-	*84.047*	-	-	*1.825*	-	-	*4.045*	-	-	*0.000*	-	-	*4.414*	-	-	*4.414*
Subtotal: Hardware - EF850 Component Improvement/ DMS Cost	**-**	**-**	***84.047***	**-**	**-**	***1.825***	**-**	**-**	***4.045***	**-**	**-**	***0.000***	**-**	**-**	***4.414***	**-**	**-**	***4.414***
Hardware - EF957 Containers Cost																		
Recurring Cost																		
9.1.1) EF957 Container(†)	8,240.00	350	2.884	15,525.00	20	0.311	12,192.31	26	0.317	-	-	0.000	12,423.96	20	0.248	12,423.96	20	0.248
Subtotal: Recurring Cost	-	-	*2.884*	-	-	*0.311*	-	-	*0.317*	-	-	*0.000*	-	-	*0.248*	-	-	*0.248*
Subtotal: Hardware - EF957 Containers Cost	**-**	**-**	***2.884***	**-**	**-**	***0.311***	**-**	**-**	***0.317***	**-**	**-**	***0.000***	**-**	**-**	***0.248***	**-**	**-**	***0.248***
Support - EF830 Production Support Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2242 / Rolling Airframe Missile (RAM)	Item Number / Title [DODIC]: 1 / Rolling Airframe Missile (RAM)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
10.1) EF830 Production Support Contractor Engineering (7)	-	-	39.784	-	-	5.012	-	-	3.696	-	-	0.000	-	-	3.843	-	-	3.843
10.2) EF830 Production Support Gov In-House Engineering	-	-	42.969	-	-	0.972	-	-	2.540	-	-	0.000	-	-	2.591	-	-	2.591
Subtotal: Support - EF830 Production Support Cost	**-**	**-**	***82.753***	**-**	**-**	***5.984***	**-**	**-**	***6.236***	**-**	**-**	***0.000***	**-**	**-**	***6.434***	**-**	**-**	***6.434***
Support - EF860 Product Acceptance Cost																		
11.1) EF860 Product Acceptance	-	-	5.699	-	-	0.238	-	-	0.406	-	-	0.000	-	-	0.414	-	-	0.414
Subtotal: Support - EF860 Product Acceptance Cost	**-**	**-**	***5.699***	**-**	**-**	***0.238***	**-**	**-**	***0.406***	**-**	**-**	***0.000***	**-**	**-**	***0.414***	**-**	**-**	***0.414***
Support - EF950 Tool & Test Equipment Cost																		
12.1) EF950 Tool & Test Equipment	-	-	1.205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - EF950 Tool & Test Equipment Cost	**-**	**-**	***1.205***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - EF974 ILS Cost																		
13.1) EF974 ILS	-	-	6.671	-	-	0.611	-	-	0.605	-	-	0.000	-	-	0.617	-	-	0.617
13.2) WAXXX Acquisition Workforce Fund 2009	-	-	0.347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - EF974 ILS Cost	**-**	**-**	***7.018***	**-**	**-**	***0.611***	**-**	**-**	***0.605***	**-**	**-**	***0.000***	**-**	**-**	***0.617***	**-**	**-**	***0.617***
Gross/Weapon System Cost	**728,614.84**	**1,685**	**1,227.716**	**888,225.00**	**120**	**106.587**	**890,935.19**	**108**	**96.221**	**-**	**-**	**0.000**	**889,708.33**	**120**	**106.765**	**889,708.33**	**120**	**106.765**

Remarks:
[Support Cost] Additional efforts required to support DMS is driving the increase in production support for updating the technical data package (TDP). Production support is an annual requirement which supports all on-going production and is independent of contract award quantities.

(†) indicates the presence of a P-5a

Footnotes:
(1) FY18 GMRP Contract included procurement of 5 Telemetry All Up Round Missiles (AUR). The Telemetry rounds do not include the Safe and Arm Device component
(2) FY18 GMRP Contract included procurement of 5 Telemetry All Up Round Missiles (AUR). The Telemetry rounds do not include the Ordnance Pack Component.
(3) FY19 GMRPs utilize existing Warhead stock. FY20 Warheads will need to be procured.
(4) FY19 Budget did not support Ordalt procurement. FY20 we are budgeted to procure 9 Ordalts.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(5) FY19 Component Improvement funds supported a quantity of 108. Fy20 supports a quantity of 120 plus 9 Ordalts. In addition funding supports final implementation of the ERF Tech Refresh Project.

(6) DMS reflects normal levels of manufacturing obsolescence associated with Field-Programmable Gate Arrays (FPGA), flash drives, capacitors, resistors, inductors, diodes, adhesives, chemicals (rocket motor), materials (potting, fiberglass, printed circuit cards, alloys), etc. RAM also has a requirement for long term storage making it susceptible to tin whiskers. Therefore, many components require unique tin-lead alloy or lead coating to prevent this phenomenon. These components historically have recurring short time frame obsolescence issues.

(7) FY20 Production Support funding supports a quantity of 120. FY19 Funding supported a quantity of 108. Funding also supports Transition to Production for implementation of the ERF Tech Refresh.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2242 / Rolling Airframe Missile (RAM)	Item Number / Title [DODIC]: 1 / Rolling Airframe Missile (RAM)

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
7.1.1) EF008 G&C(†)		2012	Raytheon CO / Tucson AZ	SS / FFP	NAVSEA	Jul 2012	Jun 2014	61	737,000.00	Y		Feb 2011
7.1.1) EF008 G&C(†)		2013	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2012	Dec 2014	61	556,409.84	Y		Feb 2011
7.1.1) EF008 G&C(†)		2014	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jun 2014	Jun 2016	66	497,909.09	Y		Jun 2012
7.1.1) EF008 G&C(†)		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Feb 2015	Feb 2017	90	460,181.24	Y		Jun 2012
7.1.1) EF008 G&C(†)		2016	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2015	Dec 2017	90	526,233.33	Y		Feb 2014
7.1.1) EF008 G&C(†)		2017	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2016	Dec 2018	120	493,831.03	Y		Feb 2014
7.1.1) EF008 G&C(†)		2018	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	May 2018	May 2020	120	525,973.57	Y		Feb 2016
7.1.1) EF008 G&C(†)		2019	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2018	Dec 2020	108	603,898.14	Y		Feb 2016
7.1.1) EF008 G&C(†)	✓	2020	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	120	536,484.71	Y		Feb 2018
7.1.2) EF008 Propulsion(†)		2012	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Jul 2012	Jul 2014	61	75,000.00	Y		Feb 2011
7.1.2) EF008 Propulsion(†)		2013	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Dec 2012	Dec 2014	61	76,278.69	Y		Feb 2011
7.1.2) EF008 Propulsion(†)		2014	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Jun 2014	Jun 2016	66	83,151.52	Y		Feb 2013
7.1.2) EF008 Propulsion(†)		2015	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Feb 2015	Feb 2017	90	68,606.49	Y		Feb 2013
7.1.2) EF008 Propulsion(†)		2016	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Dec 2015	Dec 2017	90	78,723.03	Y		Feb 2015
7.1.2) EF008 Propulsion(†)		2017	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Dec 2016	Dec 2018	120	66,332.00	Y		Feb 2015
7.1.2) EF008 Propulsion(†)		2018	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	May 2018	May 2020	120	73,973.57	Y		Feb 2016
7.1.2) EF008 Propulsion(†)		2019	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Dec 2018	Dec 2020	108	73,556.90	Y		Feb 2016
7.1.2) EF008 Propulsion(†)	✓	2020	Raytheon CO / Tuscon, AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	120	75,444.71	Y		Feb 2018
7.1.3) EF008 Safe and Arm Device		2012	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jul 2012	Jul 2014	61	15,000.00	Y		Feb 2011
7.1.3) EF008 Safe and Arm Device		2013	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2012	Dec 2014	61	15,262.30	Y		Feb 2011
7.1.3) EF008 Safe and Arm Device		2014	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jun 2014	Jun 2016	66	16,621.21	Y		Feb 2013
7.1.3) EF008 Safe and Arm Device		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Feb 2015	Feb 2017	90	6,472.31	Y		Feb 2013
7.1.3) EF008 Safe and Arm Device		2016	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2015	Dec 2017	90	7,307.52	Y		Feb 2015
7.1.3) EF008 Safe and Arm Device		2017	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2016	Dec 2018	120	7,299.69	Y		Feb 2015
7.1.3) EF008 Safe and Arm Device		2018	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	May 2018	May 2020	115	6,000.00	Y		Feb 2016
7.1.3) EF008 Safe and Arm Device		2019	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2018	Dec 2020	108	6,000.00	Y		Feb 2016
7.1.3) EF008 Safe and Arm Device	✓	2020	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	120	6,125.00	Y		Feb 2018
7.1.4) EF008 Ordnance Pack(†)		2012	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jul 2012	Jul 2014	61	48,000.00	Y		Feb 2011
7.1.4) EF008 Ordnance Pack(†)		2013	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2012	Dec 2014	61	48,819.67	Y		Feb 2011

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2242 / Rolling Airframe Missile (RAM)	Item Number / Title [DODIC]: 1 / Rolling Airframe Missile (RAM)

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
7.1.4) EF008 Ordnance Pack(†)		2014	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jun 2014	Jun 2016	66	53,212.12	Y		Feb 2013
7.1.4) EF008 Ordnance Pack(†)		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Feb 2015	Feb 2017	90	47,247.87	Y		Feb 2013
7.1.4) EF008 Ordnance Pack(†)		2016	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2015	Dec 2017	90	54,022.22	Y		Feb 2015
7.1.4) EF008 Ordnance Pack(†)		2017	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2016	Dec 2018	120	50,433.07	Y		Feb 2015
7.1.4) EF008 Ordnance Pack(†)		2018	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	May 2018	May 2020	115	47,008.69	Y		Feb 2016
7.1.4) EF008 Ordnance Pack(†)		2019	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2018	Dec 2020	108	47,008.69	Y		Feb 2016
7.1.4) EF008 Ordnance Pack(†)	✓	2020	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	120	48,031.80	Y		Feb 2018
7.1.5) EF008 Warhead		2012	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jul 2012	Jul 2014	61	14,508.20	Y		Feb 2011
7.1.5) EF008 Warhead		2013	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2012	Dec 2014	61	14,754.10	Y		Feb 2011
7.1.5) EF008 Warhead		2014	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jun 2014	Jun 2016	66	16,075.76	Y		Feb 2013
7.1.5) EF008 Warhead		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Feb 2015	Feb 2017	90	25,242.00	Y		Feb 2013
7.1.5) EF008 Warhead		2016	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2015	Dec 2017	90	28,765.76	Y		Feb 2015
7.1.5) EF008 Warhead		2017	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2016	Dec 2018	120	28,734.91	Y		Feb 2015
7.1.5) EF008 Warhead		2018	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	May 2018	May 2020	187	21,310.16	Y		Feb 2016
7.1.5) EF008 Warhead	✓	2020	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	120	22,727.54	Y		Feb 2018
7.1.6) EF008 Canister(†)		2012	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jul 2012	Jul 2014	61	60,000.00	Y		Feb 2011
7.1.6) EF008 Canister(†)		2013	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2012	Dec 2014	61	57,786.89	Y		Feb 2011
7.1.6) EF008 Canister(†)		2014	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Jun 2014	Jun 2016	66	66,515.15	Y		Feb 2013
7.1.6) EF008 Canister(†)		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Feb 2015	Feb 2017	90	39,481.09	Y		Feb 2013
7.1.6) EF008 Canister(†)		2016	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2015	Dec 2017	90	44,887.43	Y		Feb 2015
7.1.6) EF008 Canister(†)		2017	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2016	Dec 2018	120	44,233.30	Y		Feb 2015
7.1.6) EF008 Canister(†)		2018	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	May 2018	May 2020	120	53,042.00	Y		Feb 2016
7.1.6) EF008 Canister(†)		2019	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2018	Dec 2020	108	52,977.87	Y		Feb 2016
7.1.6) EF008 Canister(†)	✓	2020	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	120	54,101.85	Y		Feb 2018
7.1.7) EF008 BLK 2 GMRP ORDALTS(†)		2018	Raytheon CO (8) / Tucson AZ	SS / FFP	NAVSEA	May 2018	May 2020	12	576,665.00	Y		Feb 2016
7.1.7) EF008 BLK 2 GMRP ORDALTS(†)	✓	2020	Raytheon CO (8) / Tucson AZ	SS / FFP	NAVSEA	Dec 2019	Dec 2021	9	609,837.00	Y		Feb 2018
7.1.8) EF008 Telemeters		2015	NAWC China Lake / China Lake, CA	WR	CA	Feb 2015	May 2016	35	25,992.00	Y		
7.1.8) EF008 Telemeters		2016	NAWC China Lake / China Lake, CA	WR	CA	Oct 2015	Jan 2017	24	31,250.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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
7.1.8) EF008 Telemeters		2017	NAWC China Lake / China Lake, CA	WR	CA	Oct 2016	Jan 2018	33	41,000.00	Y		
7.2.1) EF008 BLK 2B HUM		2018	Raytheon CO / Tucson AZ	SS / FFP	NAVSEA	May 2018	May 2020	1	2,258K	Y		Feb 2016
9.1.1) EF957 Container		2014	NSWC Indian Head / Picatinny, NJ	C / FFP	NJ	Feb 2015	Aug 2015	108	6,815.00	Y		Nov 2014
9.1.1) EF957 Container		2015	NSWC Indian Head / Picatinny, NJ	C / FFP	NJ	Jul 2015	Jan 2016	93	6,967.74	Y		Nov 2014
9.1.1) EF957 Container		2018	NSWC Indian Head / Picatinny, NJ	C / FFP	NJ	Jan 2018	Jul 2018	20	15,525.00	Y		Jun 2017
9.1.1) EF957 Container		2019	NSWC Indian Head / Picatinny, NJ	C / FFP	NJ	Jan 2019	Jul 2019	26	12,192.31	Y		Jun 2017
9.1.1) EF957 Container	✓	2020	NSWC Indian Head / Picatinny, NJ	C / FFP	NJ	Oct 2019	Apr 2020	20	12,423.96	Y		

(†) indicates the presence of a P-21

Footnotes:

(8) MSR assumes ORDALT procurement is in conjucntion with procurement of 90 GMRP's.

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM) | **Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

Cost Elements (Units in Each)							Fiscal Year 2012												Fiscal Year 2013											BALANCE
										Calendar Year 2012												Calendar Year 2013								
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	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	
7.1.1) EF008 G&C																															
	2	2012	NAVY	61	0	61										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
	1	2013	NAVY	61	0	61															A -	-	-	-	-	-	-	-	-	-	61
	1	2014	NAVY	66	0	66																									66
	1	2015	NAVY	90	0	90																									90
	1	2016	NAVY	90	0	90																									90
	1	2017	NAVY	120	0	120																									120
	1	2018	NAVY	120	0	120																									120
	1	2019	NAVY	108	0	108																									108
✓	1	2020	NAVY	120	0	120																									120
7.1.2) EF008 Propulsion																															
	3	2012	NAVY	61	0	61										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
	3	2013	NAVY	61	0	61															A -	-	-	-	-	-	-	-	-	-	61
	3	2014	NAVY	66	0	66																									66
	3	2015	NAVY	90	0	90																									90
	3	2016	NAVY	90	0	90																									90
	3	2017	NAVY	120	0	120																									120
	3	2018	NAVY	120	0	120																									120
	3	2019	NAVY	108	0	108																									108
✓	3	2020	NAVY	120	0	120																									120
7.1.4) EF008 Ordnance Pack (2)																															
	4	2012	NAVY	61	0	61										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
	4	2013	NAVY	61	0	61															A -	-	-	-	-	-	-	-	-	-	61
	4	2014	NAVY	66	0	66																									66
	4	2015	NAVY	90	0	90																									90
	4	2016	NAVY	90	0	90																									90
	4	2017	NAVY	120	0	120																									120
	4	2018	NAVY	115	0	115																									115
	4	2019	NAVY	108	0	108																									108
✓	4	2020	NAVY	120	0	120																									120
7.1.6) EF008 Canister																															
	5	2012	NAVY	61	0	61										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
	5	2013	NAVY	61	0	61															A -	-	-	-	-	-	-	-	-	-	61
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

Cost Elements (Units in Each)							Fiscal Year 2012												Fiscal Year 2013												BALANCE
										Calendar Year 2012												Calendar Year 2013									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	5	2014	NAVY	66	0	66																									66
	5	2015	NAVY	90	0	90																									90
	5	2016	NAVY	90	0	90																									90
	5	2017	NAVY	120	0	120																									120
	5	2018	NAVY	120	0	120																									120
	5	2019	NAVY	108	0	108																									108
✓	5	2020	NAVY	120	0	120																									120
7.1.7) EF008 BLK 2 GMRP ORDALTS (4)																															
	6	2018	NAVY	12	0	12																									12
✓	6	2020	NAVY	9	0	9																									9
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM) | **Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

Cost Elements (Units in Each)							Fiscal Year 2014												Fiscal Year 2015												BALANCE
										Calendar Year 2014												Calendar Year 2015									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	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	
7.1.1) EF008 G&C																															
	2	2012	NAVY	61	0	61	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	5	6					0
	1	2013	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	11
	1	2014	NAVY	66	0	66									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66
	1	2015	NAVY	90	0	90																	A -	-	-	-	-	-	-	-	90
	1	2016	NAVY	90	0	90																									90
	1	2017	NAVY	120	0	120																									120
	1	2018	NAVY	120	0	120																									120
	1	2019	NAVY	108	0	108																									108
✓	1	2020	NAVY	120	0	120																									120
7.1.2) EF008 Propulsion																															
	3	2012	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	6					0
	3	2013	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	11
	3	2014	NAVY	66	0	66									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66
	3	2015	NAVY	90	0	90																	A -	-	-	-	-	-	-	-	90
	3	2016	NAVY	90	0	90																									90
	3	2017	NAVY	120	0	120																									120
	3	2018	NAVY	120	0	120																									120
	3	2019	NAVY	108	0	108																									108
✓	3	2020	NAVY	120	0	120																									120
7.1.4) EF008 Ordnance Pack [2]																															
	4	2012	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	6					0
	4	2013	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	11
	4	2014	NAVY	66	0	66									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66
	4	2015	NAVY	90	0	90																	A -	-	-	-	-	-	-	-	90
	4	2016	NAVY	90	0	90																									90
	4	2017	NAVY	120	0	120																									120
	4	2018	NAVY	115	0	115																									115
	4	2019	NAVY	108	0	108																									108
✓	4	2020	NAVY	120	0	120																									120
7.1.6) EF008 Canister																															
	5	2012	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	6					0
	5	2013	NAVY	61	0	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	5	5	5	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

Cost Elements (Units in Each)							Fiscal Year 2014												Fiscal Year 2015												BALANCE
							Calendar Year 2014												Calendar Year 2015												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	5	2014	NAVY	66	0	66									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66
	5	2015	NAVY	90	0	90																	A -	-	-	-	-	-	-	-	90
	5	2016	NAVY	90	0	90																									90
	5	2017	NAVY	120	0	120																									120
	5	2018	NAVY	120	0	120																									120
	5	2019	NAVY	108	0	108																									108
✓	5	2020	NAVY	120	0	120																									120
7.1.7) EF008 BLK 2 GMRP ORDALTS (4)																															
	6	2018	NAVY	12	0	12																									12
✓	6	2020	NAVY	9	0	9																									9
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM) | **Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
							Calendar Year 2016												Calendar Year 2017												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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	
7.1.1) EF008 G&C																															
	2	2012	NAVY	61	61	0																									0
	1	2013	NAVY	61	50	11	5	6																							0
	1	2014	NAVY	66	0	66	-	-	-	-	-	-	-	-	5	5	5	5	5	5	6	6	6	6	6	6					0
	1	2015	NAVY	90	0	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	7	8	7	8	7	8	30
	1	2016	NAVY	90	0	90			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
	1	2017	NAVY	120	0	120															A -	-	-	-	-	-	-	-	-	-	120
	1	2018	NAVY	120	0	120																									120
	1	2019	NAVY	108	0	108																									108
✓	1	2020	NAVY	120	0	120																									120
7.1.2) EF008 Propulsion																															
	3	2012	NAVY	61	61	0																									0
	3	2013	NAVY	61	50	11	5	6																							0
	3	2014	NAVY	66	0	66	-	-	-	-	-	-	-	-	5	5	5	5	5	5	6	6	6	6	6	6					0
	3	2015	NAVY	90	0	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	7	8	7	8	7	8	30
	3	2016	NAVY	90	0	90			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
	3	2017	NAVY	120	0	120															A -	-	-	-	-	-	-	-	-	-	120
	3	2018	NAVY	120	0	120																									120
	3	2019	NAVY	108	0	108																									108
✓	3	2020	NAVY	120	0	120																									120
7.1.4) EF008 Ordnance Pack (2)																															
	4	2012	NAVY	61	61	0																									0
	4	2013	NAVY	61	50	11	5	6																							0
	4	2014	NAVY	66	0	66	-	-	-	-	-	-	-	-	5	5	5	5	5	5	6	6	6	6	6	6					0
	4	2015	NAVY	90	0	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	7	8	7	8	7	8	30
	4	2016	NAVY	90	0	90			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
	4	2017	NAVY	120	0	120															A -	-	-	-	-	-	-	-	-	-	120
	4	2018	NAVY	115	0	115																									115
	4	2019	NAVY	108	0	108																									108
✓	4	2020	NAVY	120	0	120																									120
7.1.6) EF008 Canister																															
	5	2012	NAVY	61	61	0																									0
	5	2013	NAVY	61	50	11	5	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
							Calendar Year 2016															Calendar Year 2017									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	5	2014	NAVY	66	0	66	-	-	-	-	-	-	-	-	5	5	5	5	5	5	6	6	6	6	6	6					0
	5	2015	NAVY	90	0	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	7	8	7	8	7	8	30
	5	2016	NAVY	90	0	90			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
	5	2017	NAVY	120	0	120															A -	-	-	-	-	-	-	-	-	-	120
	5	2018	NAVY	120	0	120																									120
	5	2019	NAVY	108	0	108																									108
✓	5	2020	NAVY	120	0	120																									120
7.1.7) EF008 BLK 2 GMRP ORDALTS (4)																															
	6	2018	NAVY	12	0	12																									12
✓	6	2020	NAVY	9	0	9																									9
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM) | **Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

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	
7.1.1) EF008 G&C																															
	2	2012	NAVY	61	61	0																									0
	1	2013	NAVY	61	61	0																									0
	1	2014	NAVY	66	66	0																									0
	1	2015	NAVY	90	60	30	7	8	7	8																					0
	1	2016	NAVY	90	0	90	-	-	7	8	7	8	7	8	7	8	7	8	7	8											0
	1	2017	NAVY	120	0	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	20
	1	2018	NAVY	120	0	120								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
	1	2019	NAVY	108	0	108															A -	-	-	-	-	-	-	-	-	-	108
✓	1	2020	NAVY	120	0	120																									120
7.1.2) EF008 Propulsion																															
	3	2012	NAVY	61	61	0																									0
	3	2013	NAVY	61	61	0																									0
	3	2014	NAVY	66	66	0																									0
	3	2015	NAVY	90	60	30	7	8	7	8																					0
	3	2016	NAVY	90	0	90	-	-	7	8	7	8	7	8	7	8	7	8	7	8											0
	3	2017	NAVY	120	0	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	20
	3	2018	NAVY	120	0	120								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
	3	2019	NAVY	108	0	108															A -	-	-	-	-	-	-	-	-	-	108
✓	3	2020	NAVY	120	0	120																									120
7.1.4) EF008 Ordnance Pack [2]																															
	4	2012	NAVY	61	61	0																									0
	4	2013	NAVY	61	61	0																									0
	4	2014	NAVY	66	66	0																									0
	4	2015	NAVY	90	60	30	7	8	7	8																					0
	4	2016	NAVY	90	0	90	-	-	7	8	7	8	7	8	7	8	7	8	7	8											0
	4	2017	NAVY	120	0	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	20
	4	2018	NAVY	115	0	115								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115
	4	2019	NAVY	108	0	108															A -	-	-	-	-	-	-	-	-	-	108
✓	4	2020	NAVY	120	0	120																									120
7.1.6) EF008 Canister																															
	5	2012	NAVY	61	61	0																									0
	5	2013	NAVY	61	61	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2

P-1 Line Item Number / Title: 2242 / Rolling Airframe Missile (RAM)

Item Number / Title [DODIC]: 1 / Rolling Airframe Missile (RAM)

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	
	5	2014	NAVY	66	66	0																									0
	5	2015	NAVY	90	60	30	7	8	7	8																					0
	5	2016	NAVY	90	0	90	-	-	7	8	7	8	7	8	7	8	7	8	7	8											0
	5	2017	NAVY	120	0	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	20
	5	2018	NAVY	120	0	120								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
	5	2019	NAVY	108	0	108															A -	-	-	-	-	-	-	-	-	-	108
✓	5	2020	NAVY	120	0	120																									120
7.1.7) EF008 BLK 2 GMRP ORDALTS (4)																															
	6	2018	NAVY	12	0	12								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
✓	6	2020	NAVY	9	0	9																									9
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM) | **Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

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	
7.1.1) EF008 G&C																															
	2	2012	NAVY	61	61	0																									0
	1	2013	NAVY	61	61	0																									0
	1	2014	NAVY	66	66	0																									0
	1	2015	NAVY	90	90	0																									0
	1	2016	NAVY	90	90	0																									0
	1	2017	NAVY	120	100	20	10	10																							0
	1	2018	NAVY	120	0	120	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	10	10						0
	1	2019	NAVY	108	0	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	9	9	9	9	9	9	9	18
✓	1	2020	NAVY	120	0	120			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
7.1.2) EF008 Propulsion																															
	3	2012	NAVY	61	61	0																									0
	3	2013	NAVY	61	61	0																									0
	3	2014	NAVY	66	66	0																									0
	3	2015	NAVY	90	90	0																									0
	3	2016	NAVY	90	90	0																									0
	3	2017	NAVY	120	100	20	10	10																							0
	3	2018	NAVY	120	0	120	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	10	10						0
	3	2019	NAVY	108	0	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	9	9	9	9	9	9	9	18
✓	3	2020	NAVY	120	0	120			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
7.1.4) EF008 Ordnance Pack [2]																															
	4	2012	NAVY	61	61	0																									0
	4	2013	NAVY	61	61	0																									0
	4	2014	NAVY	66	66	0																									0
	4	2015	NAVY	90	90	0																									0
	4	2016	NAVY	90	90	0																									0
	4	2017	NAVY	120	100	20	10	10																							0
	4	2018	NAVY	115	0	115	-	-	-	-	-	-	-	10	10	10	10	10	10	10	9	9	9	9	9						0
	4	2019	NAVY	108	0	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	9	9	9	9	9	9	9	18
✓	4	2020	NAVY	120	0	120			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
7.1.6) EF008 Canister																															
	5	2012	NAVY	61	61	0																									0
	5	2013	NAVY	61	61	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

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	
	5	2014	NAVY	66	66	0																									0
	5	2015	NAVY	90	90	0																									0
	5	2016	NAVY	90	90	0																									0
	5	2017	NAVY	120	100	20	10	10																							0
	5	2018	NAVY	120	0	120	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10	10	10	10						0
	5	2019	NAVY	108	0	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	9	9	9	9	9	9	9	9	9	18
✓	5	2020	NAVY	120	0	120			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120
7.1.7) EF008 BLK 2 GMRP ORDALTS (4)																															
	6	2018	NAVY	12	0	12	-	-	-	-	-	-	-	2	2	2	2	2	2												0
✓	6	2020	NAVY	9	0	9			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM) | **Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

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	
7.1.1) EF008 G&C																																
	2	2012	NAVY	61	61	0																										0
	1	2013	NAVY	61	61	0																										0
	1	2014	NAVY	66	66	0																										0
	1	2015	NAVY	90	90	0																										0
	1	2016	NAVY	90	90	0																										0
	1	2017	NAVY	120	120	0																										0
	1	2018	NAVY	120	120	0																										0
	1	2019	NAVY	108	90	18	9	9																								0
✓	1	2020	NAVY	120	0	120	-	-	10	10	10	10	10	10	10	10	10	10	10	10												0
7.1.2) EF008 Propulsion																																
	3	2012	NAVY	61	61	0																										0
	3	2013	NAVY	61	61	0																										0
	3	2014	NAVY	66	66	0																										0
	3	2015	NAVY	90	90	0																										0
	3	2016	NAVY	90	90	0																										0
	3	2017	NAVY	120	120	0																										0
	3	2018	NAVY	120	120	0																										0
	3	2019	NAVY	108	90	18	9	9																								0
✓	3	2020	NAVY	120	0	120	-	-	10	10	10	10	10	10	10	10	10	10	10	10												0
7.1.4) EF008 Ordnance Pack (2)																																
	4	2012	NAVY	61	61	0																										0
	4	2013	NAVY	61	61	0																										0
	4	2014	NAVY	66	66	0																										0
	4	2015	NAVY	90	90	0																										0
	4	2016	NAVY	90	90	0																										0
	4	2017	NAVY	120	120	0																										0
	4	2018	NAVY	115	115	0																										0
	4	2019	NAVY	108	90	18	9	9																								0
✓	4	2020	NAVY	120	0	120	-	-	10	10	10	10	10	10	10	10	10	10	10	10												0
7.1.6) EF008 Canister																																
	5	2012	NAVY	61	61	0																										0
	5	2013	NAVY	61	61	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

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	
	5	2014	NAVY	66	66	0																									0
	5	2015	NAVY	90	90	0																									0
	5	2016	NAVY	90	90	0																									0
	5	2017	NAVY	120	120	0																									0
	5	2018	NAVY	120	120	0																									0
	5	2019	NAVY	108	90	18	9	9																							0
✓	5	2020	NAVY	120	0	120	-	-	10	10	10	10	10	10	10	10	10	10	10	10											0
7.1.7) EF008 BLK 2 GMRP ORDALTS (4)																															
	6	2018	NAVY	12	12	0																									0
✓	6	2020	NAVY	9	0	9	-	-	2	2	2	2	1																		0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2242 / Rolling Airframe Missile (RAM)	**Item Number / Title [DODIC]:** 1 / Rolling Airframe Missile (RAM)

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 CO - Tucson, AZ	120	240	480	0	3	24	27	0	3	24	27
2	Raytheon CO - Tucson AZ	120	240	480	0	3	23	26	0	3	26	29
3	Raytheon CO - Tuscon, AZ	120	240	480	0	3	24	27	0	3	24	27
4	Raytheon CO - Tucson, AZ	120	240	480	0	3	24	27	0	3	24	27
5	Raytheon CO - Tucson, AZ	120	240	480	0	3	24	27	0	2	24	26
6	Raytheon CO (8) - Tucson AZ	1	240	439	0	0	24	24	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(8) MSR assumes ORDALT procurement is in conjucntion with procurement of 90 GMRP's.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	104	-	75	-	382	382	481	195	322	312	4,435	6,306
Gross/Weapon System Cost *($ in Millions)*	21.922	3.789	24.109	0.000	90.966	90.966	114.371	50.418	76.246	77.770	1,204.238	1,663.829
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	21.922	3.789	24.109	0.000	90.966	90.966	114.371	50.418	76.246	77.770	1,204.238	1,663.829
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**21.922**	**3.789**	**24.109**	**0.000**	**90.966**	**90.966**	**114.371**	**50.418**	**76.246**	**77.770**	**1,204.238**	**1,663.829**
(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)*	210,788.46	-	321,453.33	-	238,130.89	238,130.89	237,777.55	258,553.85	236,788.82	249,262.82	271,530.55	263,848.56

Description:

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that will incorporate multi-mode seeker technology thus providing advanced Line-of-Sight and Beyond-Line-of-Sight precision fire and-forget seeker targeting capabilities resulting in increased lethality against soft, hardened, moving, stationary, land and maritime threats. JAGM improves the warfighter's capability in adverse weather, day or night, and in obscured/countermeasure environments. The JAGM Increment 1 system will replace aviation-launched, Tube-launched, Optically-tracked, Wire-guided (TOW) missile, and Helicopter Launched Fire-&-Forget (HELLFIRE) Missile Systems. JAGM is an Army-led joint program that addresses rotary wing and unmanned aerial vehicle requirements. The Department of Navy threshold platform is the AH-1Z. The JAGM system includes missile, trainers, containers, support equipment, and software modifications to the M-299 launcher. Missile configurations include the JAGM Tactical Missile, Captive Air Training Missile and Air Training Missile.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Joint Air Ground Missile (JAGM)	P-5a, P-21			104 / 21.922	- / 3.789	75 / 24.109	- / 0.000	382 / 90.966	382 / 90.966
P-40	**Total Gross/Weapon System Cost**				**104 / 21.922**	**- / 3.789**	**75 / 24.109**	**- / 0.000**	**382 / 90.966**	**382 / 90.966**

*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:
OCO:
FY2020 funding supports the procurement of JAGM All Up Rounds (AURs) to replace Hellfire inventory that has been expended in support of Operation Inherent Resolve (OIR) and enduring efforts. The assets are replacing expenditures that occurred from October 1, 2012 through December 2, 2016. There is currently no Hellfire variant in production that is integrated with DoN platforms and since JAGM is the successor to Hellfire, the combat expenditures are being replaced with the JAGM.

Funding is also to support 4 Captive Air Training Missiles (CATMs), Other Production Support (OPS), and production related engineering and logistics support.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	**Item Number / Title [DODIC]:** 1 / Joint Air Ground Missile (JAGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	104	-	75	-	382	382
Gross/Weapon System Cost *($ in Millions)*	21.922	3.789	24.109	0.000	90.966	90.966
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	21.922	3.789	24.109	0.000	90.966	90.966
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**21.922**	**3.789**	**24.109**	**0.000**	**90.966**	**90.966**
(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)*	210,788.46	-	321,453.33	-	238,130.89	238,130.89

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) (JG010) JAGM All-Up-Round (AUR)(†) (1)	180,320.00	100	18.032	-	-	-	220,871.00	71	15.682	-	-	0.000	213,973.00	382	81.738	213,973.00	382	81.738
1.1.3) (JG300) Training Missiles(†) (2)	196,000.00	4	0.784	-	-	-	220,871.00	4	0.883	-	-	-	-	-	-	-	-	-
1.1.4) (JG301) Captive Air Training Missile(†) (3)	-	-	-	-	-	-	-	-	-	-	-	0.000	188,042.00	4	0.752	188,042.00	4	0.752
Subtotal: Recurring Cost	-	-	*18.816*	-	-	-	-	-	*16.565*	-	-	*0.000*	-	-	*82.490*	-	-	*82.490*
Subtotal: Hardware Cost	**-**	**-**	***18.816***	**-**	**-**	**-**	**-**	**-**	***16.565***	**-**	**-**	***0.000***	**-**	**-**	***82.490***	**-**	**-**	***82.490***
Support - JAGM Support Costs Cost																		
2.1) (JG860) Integrated Logistics Support	-	-	0.224	-	-	0.300	-	-	0.575	-	-	0.000	-	-	0.586	-	-	0.586
2.2) (JG850) Production Engineering Support	-	-	1.076	-	-	1.558	-	-	2.906	-	-	0.000	-	-	2.965	-	-	2.965
2.3) (JG410) Containers (4)	-	-	0.197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5) (JG851) Other Production Support (5)	-	-	1.609	-	-	1.931	-	-	4.063	-	-	0.000	-	-	4.925	-	-	4.925
Subtotal: Support - JAGM Support Costs Cost	**-**	**-**	***3.106***	**-**	**-**	***3.789***	**-**	**-**	***7.544***	**-**	**-**	***0.000***	**-**	**-**	***8.476***	**-**	**-**	***8.476***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	**Item Number / Title [DODIC]:** 1 / Joint Air Ground Missile (JAGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Gross/Weapon System Cost	**210,788.46**	**104**	**21.922**	**-**	**-**	**3.789**	**321,453.33**	**75**	**24.109**	**-**	**-**	**0.000**	**238,130.89**	**382**	**90.966**	**238,130.89**	**382**	**90.966**

(†) indicates the presence of a P-5a

Footnotes:

(1) (JG001) All Up Round (AUR) unit costs will fluctuate according to total procurement between all services.

(2) (JG002) Training Missiles are for procurement of Air Training Missiles (ATMs) required for fleet training and quantities count towards the total program quantity requirement. Training Missiles unit costs will fluctuate according to total procurement between all services.

(3) (JG301) Captive Air Training Missiles (CATM's): The JAGM program will commence procurement of CATM's in FY 2020 based on fleet training requirements.

(4) (JG005) Starting in FY 2020 Container cost will be rolled up into the All Up Round unit cost.

(5) (JG007) Other Production Support fluctuates based on Army requirements and is dependent on total procurement buy per year.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2248 / Joint Air Ground Missile (JAGM)	Item Number / Title [DODIC]: 1 / Joint Air Ground Missile (JAGM)

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) (JG010) JAGM All-Up-Round (AUR)(†)		2017	Lockheed Martin / Orlando, FL	C / FPIF	Huntsville	Sep 2018	Jan 2020	100	180,320.00	Y		Feb 2015
1.1.1) (JG010) JAGM All-Up-Round (AUR)(†)		2019 (6)	Lockheed Martin / Orlando, FL	C / FPIF	Huntsville	Sep 2019	Dec 2021	71	220,871.00	Y		May 2017
1.1.1) (JG010) JAGM All-Up-Round (AUR)(†)	✓	2020 (7)	Lockheed Martin / Orlando, FL	C / FPIF	Huntsville	Sep 2020	Oct 2022	382	213,973.00	Y		Jan 2019
1.1.3) (JG300) Training Missiles(†)		2017	Lockheed Martin (8) / Orlando, FL	C / FPIF	Huntsville	Sep 2018	Dec 2018	4	196,000.00	Y		Feb 2015
1.1.3) (JG300) Training Missiles(†)		2019	Lockheed Martin (8) / Orlando, FL	C / FPIF	Huntsville	Sep 2019	Dec 2021	4	220,871.00	Y		Feb 2015
1.1.4) (JG301) Captive Air Training Missile	✓	2020	Lockheed Martin / Orlando, FL	C / FPIF	Huntsville	Sep 2020	Sep 2022	4	188,042.00	Y		Jan 2019

(†) indicates the presence of a P-21

Footnotes:

(6) FY 2019 Contract award date is September 2019 to align with the Army led contracting timeline. The contract awards in September each fiscal year in order to include other service and FMS procurements into one economical procurement.

(7) FY 2020 Contract award date is September 2020 to align with the Army led contracting timeline. The contract awards in September each fiscal year in order to include other service and FMS procurements into one economical procurement.

(8) Annual Production rates for All Up Rounds and Training Missiles represent combined rates.

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	**Item Number / Title [DODIC]:** 1 / Joint Air Ground Missile (JAGM)

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) (JG010) JAGM All-Up-Round (AUR) (1)																															
	1	2017	NAVY	100	0	100												A -	-	-	-	-	-	-	-	-	-	-	-	-	100
	1	2017	ARMY (‡)	373	0	373												A -	-	-	-	-	-	-	-	-	-	-	-	-	373
	1	**2017**	**Total**	**473**	**0**	**473**												**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**473**
	1	2019	NAVY	71	0	71																								A -	71
	1	2019	ARMY (‡)	1,046	0	1,046																								A -	1,046
	1	**2019**	**Total**	**1,117**	**0**	**1,117**																								**-**	**1,117**
✓	1	2020	NAVY	382	0	382																									382
✓	1	2020	ARMY (‡)	621	0	621																									621
✓	**1**	**2020**	**Total OCO**	**1,003**	**0**	**1,003**																									**1,003**
1.1.3) (JG300) Training Missiles (2)																															
	2	2017	NAVY	4	0	4												A -	-	-	4										0
	2	2019	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	**Item Number / Title [DODIC]:** 1 / Joint Air Ground Missile (JAGM)

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) (JG010) JAGM All-Up-Round (AUR) (1)																															
	1	2017	NAVY	100	0	100	-	-	-	50	50	-	-	-	-	-	-	-	-	-	-										0
	1	2017	ARMY (‡)	373	0	373	-	-	-	32	32	32	32	32	30	30	30	30	31	31	31										0
	1	**2017**	**Total**	**473**	**0**	**473**	**-**	**-**	**-**	**82**	**82**	**32**	**32**	**32**	**30**	**30**	**30**	**30**	**31**	**31**	**31**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2019	NAVY	71	0	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71
	1	2019	ARMY (‡)	1,046	0	1,046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,046
	1	**2019**	**Total**	**1,117**	**0**	**1,117**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,117**
✓	1	2020	NAVY	382	0	382												A -	-	-	-	-	-	-	-	-	-	-	-	-	382
✓	1	2020	ARMY (‡)	621	0	621												A -	-	-	-	-	-	-	-	-	-	-	-	-	621
✓	**1**	**2020**	**Total OCO**	**1,003**	**0**	**1,003**												**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,003**
1.1.3) (JG300) Training Missiles (2)																															
	2	2017	NAVY	4	4	0																									0
	2	2019	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	**Item Number / Title [DODIC]:** 1 / Joint Air Ground Missile (JAGM)

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) (JG010) JAGM All-Up-Round (AUR) (1)																															
	1	2017	NAVY	100	100	0																									0
	1	2017	ARMY (‡)	373	373	0																									0
	1	**2017**	**Total**	**473**	**473**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2019	NAVY	71	0	71	-	-	6	6	6	6	6	6	7	7	7	7	7	-											0
	1	2019	ARMY (‡)	1,046	0	1,046	-	-	88	88	87	87	87	87	87	87	88	87	87	86											0
	1	**2019**	**Total**	**1,117**	**0**	**1,117**	**-**	**-**	**94**	**94**	**93**	**93**	**93**	**93**	**94**	**94**	**95**	**94**	**94**	**86**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
✓	1	2020	NAVY	382	0	382	-	-	-	-	-	-	-	-	-	-	-	-	31	31	32	32	32	32	32	32	32	32	32	32	0
✓	1	2020	ARMY (‡)	621	0	621	-	-	-	-	-	-	-	-	-	-	-	-	13	14	59	59	59	59	59	59	60	60	60	60	0
✓	**1**	**2020**	**Total OCO**	**1,003**	**0**	**1,003**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**44**	**45**	**91**	**91**	**91**	**91**	**91**	**91**	**92**	**92**	**92**	**92**	**0**
1.1.3) (JG300) Training Missiles (2)																															
	2	2017	NAVY	4	4	0																									0
	2	2019	NAVY	4	0	4	-	-	4																						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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2248 / Joint Air Ground Missile (JAGM)	**Item Number / Title [DODIC]:** 1 / Joint Air Ground Missile (JAGM)

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 - Orlando, FL	420	1,200	2,400	0	12	24	36	0	12	24	36
2	Lockheed Martin (8) - Orlando, FL	420	1,200	1,200	0	12	24	36	0	12	24	36

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(8) Annual Production rates for All Up Rounds and Training Missiles represent combined rates.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2254 / Hellfire

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	6,574	110	23	-	29	29	-	-	-	-	-	6,736
Gross/Weapon System Cost *($ in Millions)*	1,044.555	8.771	1.530	0.000	1.525	1.525	0.000	0.000	0.000	0.000	-	1,056.381
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,044.555	8.771	1.530	0.000	1.525	1.525	0.000	0.000	0.000	0.000	-	1,056.381
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,044.555**	**8.771**	**1.530**	**0.000**	**1.525**	**1.525**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**1,056.381**
(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)*	135,369.64	69,727.27	56,521.74	-	44,517.24	44,517.24	-	-	-	-	-	133,637.32
Gross/Weapon System Unit Cost *($ in Dollars)*	158,891.85	79,736.36	66,521.74	-	52,586.21	52,586.21	-	-	-	-	-	156,826.16

Description:

FY 2020 funding totals include $0.0M for Base and $1.525M for Overseas Contingency Operations (OCO); of which $1.525M and 29 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

AGM-114 Hellfire is a family of laser guided missiles employed against point and moving targets by both rotary and fixed wing aircraft. The family of Hellfire missiles includes, but is not limited to, AGM-114B/K/K2/K2A/M/N/N-5/P/P+/Q/Q6 variants. These variants include shaped charge warheads for use against armored targets and blast fragmentation warheads for use against urban structures. The AGM-114N is a thermobaric blast fragmentation warhead that maintains the capability provided by the AGM-114M while adding a unique capability against confined compartmented spaces, a typical target type observed in current combat operations. Other variants include the K2A, which has a blast frag sleeve for use against soft-skinned tactical vehicles, the N5, which provides a trajectory shaping capability to increase endgame lethality against vertical structures, and the P/P+ variants, which include high altitude launch trajectories for use from fixed-wing aircraft. Additionally, the Q and Q6 variants have inert warheads, which are used for training on ranges that do not allow live warheads, and to preserve tactical missiles for use in combat. Conversions from one variant to another are done on an as needed basis.

Prior year funding includes Hellfire, Viper Strike, and Griffin.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2254 / Hellfire

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Hellfire Missile	P-5a, P-21			6,574 / 1,044.555	110 / 8.771	23 / 1.530	- / 0.000	29 / 1.525	29 / 1.525
P-40	**Total Gross/Weapon System Cost**				**6,574 / 1,044.555**	**110 / 8.771**	**23 / 1.530**	**- / 0.000**	**29 / 1.525**	**29 / 1.525**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 Hellfire baseline funding is to procure 29 training missiles and associated support.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2254 / Hellfire	Item Number / Title [DODIC]: 1 / Hellfire Missile
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	6,574	110	23	-	29	29
Gross/Weapon System Cost *($ in Millions)*	1,044.555	8.771	1.530	0.000	1.525	1.525
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,044.555	8.771	1.530	0.000	1.525	1.525
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,044.555**	**8.771**	**1.530**	**0.000**	**1.525**	**1.525**
(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)*	158,891.85	79,736.36	66,521.74	-	52,586.21	52,586.21

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Flyaway Cost																		
Recurring Cost																		
1.1.1) F6010 Hellfire All-Up-Rounds (AURs)	135,013.35	5,992	809.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) F6300 Air Training Missiles(†) (1)	65,376.29	582	38.049	69,727.27	110	7.670	56,500.00	23	1.300	-	-	0.000	44,517.24	29	1.291	44,517.24	29	1.291
1.1.3) F6420 Containers	-	-	2.264	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*849.313*	-	-	*7.670*	-	-	*1.300*	-	-	*0.000*	-	-	*1.291*	-	-	*1.291*
Subtotal: Flyaway Cost	**-**	**-**	***849.313***	**-**	**-**	***7.670***	**-**	**-**	***1.300***	**-**	**-**	***0.000***	**-**	**-**	***1.291***	**-**	**-**	***1.291***
Flyaway - Prior Year Flyaway Cost																		
Recurring Cost																		
2.1.1) Prior Year Flyaway (2)	-	-	40.607	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*40.607*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Flyaway - Prior Year Flyaway Cost	**-**	**-**	***40.607***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Procurement Support Cost																		
3.1) F6240 Government Test Program	-	-	5.579	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Procurement Support Cost	**-**	**-**	***5.579***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Product Improvement Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2254 / Hellfire	Item Number / Title [DODIC]: 1 / Hellfire Missile
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
4.1) F6310 Product Improvement Program	-	-	1.443	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2) F6340 Hellfire Conversions	-	-	3.421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3) F6820 Training Equipment/Test Equipment	-	-	30.009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	**-**	**-**	***34.873***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Production Engineering Cost																		
5.1) F6850 Production Engineering Support (3)	-	-	103.196	-	-	1.000	-	-	0.128	-	-	0.000	-	-	0.130	-	-	0.130
Subtotal: Support - Production Engineering Cost	**-**	**-**	***103.196***	**-**	**-**	***1.000***	**-**	**-**	***0.128***	**-**	**-**	***0.000***	**-**	**-**	***0.130***	**-**	**-**	***0.130***
Support - Integrated Logistics Cost																		
6.1) F6860 Integrated Logistics Support	-	-	10.987	-	-	0.101	-	-	0.102	-	-	0.000	-	-	0.104	-	-	0.104
Subtotal: Support - Integrated Logistics Cost	**-**	**-**	***10.987***	**-**	**-**	***0.101***	**-**	**-**	***0.102***	**-**	**-**	***0.000***	**-**	**-**	***0.104***	**-**	**-**	***0.104***
Gross/Weapon System Cost	**158,891.85**	**6,574**	**1,044.555**	**79,736.36**	**110**	**8.771**	**66,521.74**	**23**	**1.530**	**-**	**-**	**0.000**	**52,586.21**	**29**	**1.525**	**52,586.21**	**29**	**1.525**

(†) indicates the presence of a P-5a

Footnotes:

(1) FY20 unit price lower due to Tri-Service Procurement of the Army, Navy and Air Force.

(2) Prior year costs include funding for Viper Strike and Griffin. Funding procured 140 Viper Strike and 130 Griffin missiles.

(3) Production Engineering Support (PES) is proportional to weapon procurement quantities.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2254 / Hellfire	Item Number / Title [DODIC]: 1 / Hellfire Missile

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) F6300 Air Training Missiles(†)	✓	2017	Lockheed Martin (4) / Orlando, FL	C / FPIF	Huntsville	Aug 2017	Aug 2019	100	75,200.00	Y		Feb 2015
1.1.2) F6300 Air Training Missiles(†)	✓	2018 (5)	Lockheed Martin (4) / Orlando, FL	C / FPIF	Huntsville	Sep 2018	Sep 2020	110	69,727.27	Y		Feb 2015
1.1.2) F6300 Air Training Missiles(†)	✓	2019 (6)	Lockheed Martin (4) / Orlando, FL	C / FPIF	Huntsville	Sep 2019	Sep 2021	23	56,500.00	Y		May 2017
1.1.2) F6300 Air Training Missiles(†)	✓	2020 (7)	Lockheed Martin (4) / Orlando, FL	C / FPIF	Hunstville	Sep 2020	Sep 2022	29	44,517.24	Y		Jan 2019

(†) indicates the presence of a P-21

Footnotes:

(4) MSR is for Tri-Service Procurement of the Army, Navy and Air Force.

(5) F6300 FY 2018 Air Training Missile contract is an Army led contract that awards in September in order to combine all services and FMS procurements to achieve an economical unit cost.

(6) F6300 FY 2019 Air Training Missile contract is an Army led contract that awards in September in order to combine all services and FMS procurements to achieve an economical unit cost.

(7) F6300 FY 2020 Air Training Missile contract is an Army led contract that awards in September in order to combine all services and FMS procurements to achieve an economical unit cost.

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2254 / Hellfire	**Item Number / Title [DODIC]:** 1 / Hellfire Missile

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) F6300 Air Training Missiles [1]																															
Prior Years Deliveries: 482																															
✓	1	2017	NAVY	100	0	100											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	100
✓	1	2018	NAVY	110 [8]	0	110																								A -	110
✓	1	2019	NAVY	23	0	23																									23
✓	1	2020	NAVY	29	0	29																									29
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2254 / Hellfire	**Item Number / Title [DODIC]:** 1 / Hellfire Missile

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) F6300 Air Training Missiles [1]																															
Prior Years Deliveries: 482																															
✓	1	2017	NAVY	100	0	100	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	8	8	8	9	9	9	9			0
✓	1	2018	NAVY	110 [8]	0	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	101
✓	1	2019	NAVY	23	0	23												A -	-	-	-	-	-	-	-	-	-	-	-	-	23
✓	1	2020	NAVY	29	0	29																								A -	29
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2254 / Hellfire	**Item Number / Title [DODIC]:** 1 / Hellfire Missile

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	
1.1.2) F6300 Air Training Missiles [1]																															
Prior Years Deliveries: 482																															
✓	1	2017	NAVY	100	100	0																									0
✓	1	2018	NAVY	110 [8]	9	101	9	9	9	9	9	9	9	8	10	10	10														0
✓	1	2019	NAVY	23	0	23	-	-	-	-	-	-	-	-	-	-	-	1	2	2	2	2	2	2	2	2	2	2	2		0
✓	1	2020	NAVY	29	0	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	27
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2254 / Hellfire	**Item Number / Title [DODIC]:** 1 / Hellfire Missile

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	
1.1.2) F6300 Air Training Missiles [1]																															
Prior Years Deliveries: 482																															
✓	1	2017	NAVY	100	100	0																									0
✓	1	2018	NAVY	110 [8]	110	0																									0
✓	1	2019	NAVY	23	23	0																									0
✓	1	2020	NAVY	29	2	27	2	2	2	2	2	2	3	3	3	3	3														0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2254 / Hellfire	**Item Number / Title [DODIC]:** 1 / Hellfire Missile

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 (4) - Orlando, FL	420	3,360	7,200	0	0	0	0	0	6	24	30

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(4) MSR is for Tri-Service Procurement of the Army, Navy and Air Force.
(8) There is not a break in production due to Tri-Service procurement.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2255 / Laser Maverick

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	5.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	5.040
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	5.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	5.040
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**5.040**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**5.040**
(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 AGM-65 Maverick is a tactical, air-to-surface, guided missile designed for close-air support, interdiction and defense suppression missions. It also provides stand-off capability and high strike probability against a wide range of tactical targets, including high-speed moving targets, armor, air defenses, ships, transportation equipment and fuel storage facilities. The AGM-65E2 is a joint effort by the Navy and Air Force to modernize this capability with an enhanced laser seeker and new software that reduces the risk of collateral damage. The AGM-65E2 is a modification to the Maverick's Guidance and Control Section (GCS) to incorporate modern components which are a suitable replacement for the obsolete components of the existing AGM-65E.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2264 / Stand Off Precision Guided Munitions (SOPGM)

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	432	19	31	-	-	-	-	-	-	-	-	482
Gross/Weapon System Cost *($ in Millions)*	53.717	3.122	11.378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	68.217
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	53.717	3.122	11.378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	68.217
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**53.717**	**3.122**	**11.378**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**68.217**
(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)*	110,962.96	124,842.11	115,806.45	-	-	-	-	-	-	-	-	111,821.58
Gross/Weapon System Unit Cost *($ in Dollars)*	124,344.91	164,315.79	367,032.26	-	-	-	-	-	-	-	-	141,529.05

Description:

Stand Off Precision Guided Munition (SOPGM) weapon, Griffin Missile, is the threshold weapon for the KC-130J Intelligence, Surveillance and Reconnaissance (ISR) Weapon Mission Kit USMC requirement. This weapon satisfies a portion of the required roll-on/roll-off capability inherent in the ISR Weapon Mission Kit.

Griffin is a rocket propelled missile and uses the Global Positioning System/Inertial Navigation System (GPS/INS) to navigate to the target vicinity and a semi-active laser (SAL) seeker for terminal guidance to target impact.
The Griffin will be used on KC130J (Alpha variant) and Cyclone class Patrol Coastal (PC) ships (Bravo variant). The Griffin Alpha variant is an air launched missile and the Bravo variant is a ship launched missile.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2264 / Stand Off Precision Guided Munitions (SOPGM)

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Stand Off Precision Guided Munitions (SOPGM)	P-5a			432 / 53.717	19 / 3.122	31 / 11.378	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**432 / 53.717**	**19 / 3.122**	**31 / 11.378**	**- / 0.000**	**- / 0.000**	**- / 0.000**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY19 was the last year of procurement for Griffin Missile.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2264 / Stand Off Precision Guided Munitions (SOPGM)	**Item Number / Title [DODIC]:** 1 / Stand Off Precision Guided Munitions (SOPGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	432	19	31	-	-	-
Gross/Weapon System Cost *($ in Millions)*	53.717	3.122	11.378	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	53.717	3.122	11.378	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**53.717**	**3.122**	**11.378**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	124,344.91	164,315.79	367,032.26	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Flyaway Cost																		
Recurring Cost																		
1.1.1) Griffin All-Up-Rounds (AURs) - Bravo Variant(†) (1)	111,648.04	179	19.985	124,842.11	19	2.372	127,333.33	15	1.910	-	-	-	-	-	-	-	-	-
1.1.2) SM012 Griffin All-Up-Rounds (AURs) - Alpha Variant	110,478.26	253	27.951	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.3) SM012 Griffin All-Up-Rounds (AUR) - Alpha Variant(†)	-	-	-	-	-	-	105,000.00	16	1.680	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*47.936*	-	-	*2.372*	-	-	*3.590*	-	-	-	-	-	-	-	-	-
Subtotal: Flyaway Cost	**-**	**-**	***47.936***	**-**	**-**	***2.372***	**-**	**-**	***3.590***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - GRIFFIN Cost																		
2.1) SM820 Training Equipment	-	-	0.155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2) Production Engineering Support - Griffin Bravo Variant (2)	-	-	1.758	-	-	0.750	-	-	1.468	-	-	-	-	-	-	-	-	-
2.3) SM860 Integrated Logistics Support (3)	-	-	0.150	-	-	-	-	-	1.300	-	-	-	-	-	-	-	-	-
2.4) SM850 Production Engineering Support (4)	-	-	3.718	-	-	-	-	-	5.020	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2264 / Stand Off Precision Guided Munitions (SOPGM)	**Item Number / Title [DODIC]:** 1 / Stand Off Precision Guided Munitions (SOPGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - GRIFFIN Cost	-	-	*5.781*	-	-	*0.750*	-	-	*7.788*	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	**124,344.91**	**432**	**53.717**	**164,315.79**	**19**	**3.122**	**367,032.26**	**31**	**11.378**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

(†) indicates the presence of a P-5a

Footnotes:

(1) US SOCOM awarded a sole source 5 years IDIQ in FY 2017 to cover purchases in FY 2017 through end of contract period of performance. Awarded 18 August 2017.

(2) Production engineering support line includes Griffin Missile engineering services efforts related to field and operations services; Anti-jam Protection Technology Receiver Global Positioning System (GPS); program management office technical support; and US SOCOM contract processing fee. Funding will be required to continue Griffin Missile Ordnance Assessment surveillance program which began in FY 2016 and will be on-going through FY 2019 to extend the Griffin Missile Service Life from 5 years to 11 years to support Fleet loadout requirements.

(3) SM860 Integrated Logistics Support funds support a one-time requirement to certify and qualify the AGM-176A Block III on the Harvest HAWK platform. These funds will provide 16 AURs for destructive testing, fund testing costs including flight hours, range space, telemetry, and other required support costs including associated administrative and contractor fees.

(4) SM850 Production Engineering Support funds support a one-time requirement to certify and qualify the AGM-176A Block III on the Harvest HAWK platform. These funds will provide 16 AURs for destructive testing, fund testing costs including flight hours, range space, telemetry, and other required support costs including associated administrative and contractor fees.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2264 / Stand Off Precision Guided Munitions (SOPGM)	Item Number / Title [DODIC]: 1 / Stand Off Precision Guided Munitions (SOPGM)

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) Griffin All-Up-Rounds (AURs) - Bravo Variant		2017 (5)	Raytheon Missile System (6) / Tucson, AZ	SS / IDIQ	Tampa	Oct 2017	Jan 2019	24	122,408.00	Y		Dec 2016
1.1.1) Griffin All-Up-Rounds (AURs) - Bravo Variant		2018	Raytheon Missile System (6) / Tucson, AZ	SS / IDIQ	Tampa	Dec 2017	Mar 2019	19	124,842.11	Y		Dec 2016
1.1.1) Griffin All-Up-Rounds (AURs) - Bravo Variant		2019	Raytheon Missile System (6) / Tucson, AZ	SS / IDIQ	Tampa	Dec 2018	Mar 2020	15	127,333.33	Y		Dec 2016
1.1.3) SM012 Griffin All-Up-Rounds (AUR) - Alpha Variant		2019	Raytheon Missile System / Tucson, AZ	SS / IDIQ	Tampa	Jan 2019	Jan 2020	16	105,000.00	Y		Dec 2016

Footnotes:

(5) US SOCOM awarded a sole source 5 years IDIQ in August, 2017 to cover purchases in FY 2017 through contract period of performance.

(6) Beginning with FY 2016 contracts, Raytheon is no longer procuring Long Lead Items ahead of award - this changes extends delivery from 12 months to 15 months after award.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2280 / Aerial Targets

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	3,805.823	122.173	133.937	0.000	152.380	152.380	181.653	180.067	186.010	185.481	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	3,805.823	122.173	133.937	0.000	152.380	152.380	181.653	180.067	186.010	185.481	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**3,805.823**	**122.173**	**133.937**	**0.000**	**152.380**	**152.380**	**181.653**	**180.067**	**186.010**	**185.481**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	4.693	1.551	0.000	2.712	2.712	1.990	2.111	2.589	3.340	Continuing	Continuing
Flyaway Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $152.38M for Overseas Contingency Operations (OCO); of which $145.88M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Aerial Targets program provides threat representative aerial targets for test and evaluation (T&E) and fleet training events. Assets procured under this line item are used to simulate and replicate currently fielded subsonic and supersonic Anti-Ship Cruise Missile (ASCM) threats. The threat representative targets are used to test and evaluate Navy ship self-defense systems currently in development, and are required for the successful completion of independent operational test and evaluation prior to fielding the systems to the fleet. Some variants are also used as fleet training assets to support fleet readiness. All assets procured by the Aerial Targets program are critical elements in improving the warfighters ability to counter threats and improve threat readiness capability. This program is composed of four primary components: (1) Subsonic Aerial targets, (2) Supersonic Targets, (3) Full Scale Aerial Target (FSAT), and (4) Auxiliary/Augmenting Systems.

(1) Subsonic Aerial Targets
The Subsonic aerial targets portfolio is composed of production and modification programs, such as the BQM-177A, BQM-34, BQM-74, and others. In addition to production of the BQM-177A, funding is used to procure associated hardware and mission kits, avionics upgrade kits and other modification and Engineering Change Proposals (ECPs) as required. The BQM-177A SSAT provides dynamic, high-subsonic, sea-skimming, ASCM threat emulation for testing of USN ship defensive weapon systems and other surface-to-air systems and will replace current BQM-74E subsonic targets with increased capabilities. The BQM-34S is a jet-powered, high subsonic speed aerial target and the modification effort allows for the continued utilization of current BQM-34S inventories which are required to quickly mitigate critical subsonic inventory shortfall(s) to support Fleet Live-Fire training until the BQM-177A SSAT is fielded. Assets may be recovered and reused depending on the objectives of the event. Other subsonic targets include the BQM-74E and various Unmanned Aerial Vehicle (UAV) platforms to replicate emerging UAV threats. Funding may also be used to fund ECPs during the production process and to procure other subsonic targets in support of unique and emerging threat simulations.

(2) Supersonic Targets
The Supersonic targets program is composed of a continuing powered supersonic target production/modification program, the GQM-163A Supersonic Sea Skimming Target (SSST). The SSST is a non-recoverable supersonic sea skimming aerial target, capable of speeds in excess of Mach 2.5 and cruise altitudes from 15 to 66 ft. SSST replicates a family of supersonic sea skimming, ASCM threats to meet critical T&E requirements of USN ship self-defense systems. Additionally, SSST has successfully demonstrated a higher altitude diving threat profile capability. Funding may also be used to fund ECPs and production modifications to help the supersonic targets keep pace with emerging threats.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	
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		

(3) Full Scale Aerial Target (FSAT)
The QF-16 FSAT is an Air Force-led program providing a 4th generation, full scale, threat representative target providing a replacement for the FSAT/QF-4. The QF-16 FSAT is a converted F-16 aircraft that provides a supersonic, high altitude, remote-controlled aerial target. This target has full command and control capability through normal flight envelopes. The QF-16 FSAT target presentations supports aircraft and weapons systems testing and development, including that of the Joint Strike Fighter, AIM-9X Sidewinder missile, AIM-120 Advanced Medium Range Air-to-Air Missile, and Standard Missile-6.

(4) Auxiliary/Augmenting System Targets
The Auxiliary/Augmenting Systems includes various procurements of target ground control systems required to safely operate all aerial targets and threat simulator(s) payloads that replicate electronic attack and active emitters found on current threat missiles. The Target Mission Support Systems program provides target control and scoring, location, and navigation of targets for Fleet training and weapons systems test and evaluation. The Target Threat Simulation Program systems, installed on subsonic or supersonic targets as required, replicate various threats dependent upon the objectives of the test and evaluation event(s). When the target is destroyed, these assets are consumed and require replacement. As requirements to establish readiness capability increase, it is critical to maintain sufficient inventory of the Auxiliary/Augmenting Systems & Target Threat Simulation devices. Avionics equipment, common to all aerial targets, are also procured under Aux/Aug System Targets.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2280 / Aerial Targets
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Subsonic Aerial Targets	P-5a, P-21			- / 743.878	- / 40.507	- / 39.788	- / 0.000	- / 49.054	- / 49.054
P-5	3 / Supersonic Targets	P-5a, P-21			- / 625.847	- / 61.866	- / 64.352	- / 0.000	- / 67.930	- / 67.930
P-5	4 / Full Scale Aerial Target	P-5a			- / 0.000	- / 0.000	- / 12.791	- / 0.000	- / 15.492	- / 15.492
P-5	5 / Aux / Aug System Targets				- / 2,436.098	- / 19.800	- / 17.006	- / 0.000	- / 19.904	- / 19.904
P-40	**Total Gross/Weapon System Cost**				**- / 3,805.823**	**- / 122.173**	**- / 133.937**	**- / 0.000**	**- / 152.380**	**- / 152.380**

*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:

Subsonic Aerial Targets

FY 2020 funding supports the procurement of 40 BQM-177A Subsonic Aerial Targets (SSATs) as well as associated kits and equipment. Funds also support continued procurement/installation of avionics upgrade kits for modification to the BQM-34S targets, ECPs for the BQM-74E and other subsonic target hardware. Funds increase from FY 2019 to FY 2020 due to increase of production quantities in order to meet DDG 1000/ Advanced Missile Defense Radar Testing requirements and support Fleet Live fire with a purpose training events. All cost codes were affected and increased with the increased production quantity.

Supersonic Targets

FY 2020 funding is required for the procurement, production, and modification of GQM-163A supersonic targets. OCO for Baseline funds will support execution of the 17 GQM-163A Supersonic Sea Skimming Targets (SSST) via the FRP 14 contract with one additional GQM-163A target procured with FY 2020 Direct War OCO funds in support of the formidable Shield Exercise. A total of 18 GQM-163A targets will be procured.

Full Scale Aerial Targets

FY 2020 funding is required for procurements, production, and modification of the QF-16 Full Scale Aerial Target (FSAT). Funds will support execution of the QF-16 FSAT Lot 6 contract with the procurement of two QF-16 targets and associated support. Funds increase from FY 2019 to FY 2020 due to increased projected Pt Mugu operations, costs of equipment needed, and other associated hardware.

Auxiliary/Augmenting System Targets

FY 2020 funding is required for Auxiliary/Augmenting Systems to continue production of various target command and control systems, scoring equipment, location, identification, and navigation equipment required to safely operate all aerial targets. The targets require production of various threat simulator(s) payloads that provide affordable high fidelity simulation environments of foreign threat electronic attack and threat radar emissions. Target threat simulation requires various electronic countermeasures equipment and active emitter augmentation equipment. Funds increase from 2019 to FY 2020 to support procurements of Aerial Target Mission Support System to deliver high interest Fleet training.

OCO:

FY 2020 Enduring Requirements OCO funds ($6.5M) required to procure one GQM-163A Supersonic Sea Skimming Targets (SSST and associated equipment and support via the FRP 14 contract in support of the formidable Shield Exercise.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 1 / Subsonic Aerial Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	743.878	40.507	39.788	0.000	49.054	49.054
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	743.878	40.507	39.788	0.000	49.054	49.054
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**743.878**	**40.507**	**39.788**	**0.000**	**49.054**	**49.054**
(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 Thousands)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - Subsonic Target Hardware Cost																		
Recurring Cost																		
1.1.1) EM031 BQM-177A(†) (1)	795.355	31	24.656	711.350	30	21.341	788.599	30	23.658	-	-	0.000	785.555	40	31.422	785.555	40	31.422
1.1.2) EM441 Install/ Mission Kits (2)	-	-	18.387	-	-	4.734	-	-	3.873	-	-	0.000	-	-	4.473	-	-	4.473
1.1.3) EM442 BQM-177A Other HW / Modifications (3)	-	-	2.944	-	-	3.571	-	-	2.449	-	-	0.000	-	-	2.478	-	-	2.478
1.1.4) EM452 BQM 34/74 Target Modification	-	-	6.413	-	-	0.200	-	-	0.500	-	-	0.000	-	-	1.000	-	-	1.000
Subtotal: Recurring Cost	-	-	*52.400*	-	-	*29.846*	-	-	*30.480*	-	-	*0.000*	-	-	*39.373*	-	-	*39.373*
Subtotal: Flyaway - Subsonic Target Hardware Cost	**-**	**-**	***52.400***	**-**	**-**	***29.846***	**-**	**-**	***30.480***	**-**	**-**	***0.000***	**-**	**-**	***39.373***	**-**	**-**	***39.373***
Flyaway - Subsonic Targets Nonrecurring & Ancillary Equipment Cost																		
Non Recurring Cost																		
2.1.1) EM540 Technical Support	-	-	1.427	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*1.427*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway - Subsonic Targets Nonrecurring & Ancillary Equipment Cost	**-**	**-**	***1.427***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 1 / Subsonic Aerial Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - Subsonic Target Launch Hardware Cost																		
Recurring Cost																		
3.1.1) EM701 Subsonic Ground Equipment (4)	-	-	9.917	-	-	6.808	-	-	5.133	-	-	0.000	-	-	5.441	-	-	5.441
Subtotal: Recurring Cost	-	-	*9.917*	-	-	*6.808*	-	-	*5.133*	-	-	*0.000*	-	-	*5.441*	-	-	*5.441*
Subtotal: Flyaway - Subsonic Target Launch Hardware Cost	**-**	**-**	***9.917***	**-**	**-**	***6.808***	**-**	**-**	***5.133***	**-**	**-**	***0.000***	**-**	**-**	***5.441***	**-**	**-**	***5.441***
Flyaway - Subsonic Prior Year/Not In Production Cost																		
Non Recurring Cost																		
4.1.1) Prior Year/Not In Production Cost Subsonic	-	-	668.340	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*668.340*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway - Subsonic Prior Year/Not In Production Cost	**-**	**-**	***668.340***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support - Subsonic Production Support Cost																		
5.1) EM851 Subsonic Production Engineering Support	-	-	8.908	-	-	2.462	-	-	2.757	-	-	0.000	-	-	2.792	-	-	2.792
5.2) EM861 Subsonic Integrated Logistic Support	-	-	2.250	-	-	1.060	-	-	1.081	-	-	0.000	-	-	1.102	-	-	1.102
5.3) EM871 Publications, Training Materials and Equipment	-	-	0.636	-	-	0.331	-	-	0.337	-	-	0.000	-	-	0.346	-	-	0.346
Subtotal: Support - Subsonic Production Support Cost	**-**	**-**	***11.794***	**-**	**-**	***3.853***	**-**	**-**	***4.175***	**-**	**-**	***0.000***	**-**	**-**	***4.240***	**-**	**-**	***4.240***
Gross/Weapon System Cost	**-**	**-**	**743.878**	**-**	**-**	**40.507**	**-**	**-**	**39.788**	**-**	**-**	**0.000**	**-**	**-**	**49.054**	**-**	**-**	**49.054**

(†) indicates the presence of a P-5a

Footnotes:

(1) EM031 BQM-177A - The production contract in FY 2017 and FY 2018 were pre-priced options on the Engineering, Manufacturing, and Development FFP contract which awarded in FY 2014. FY 2019 will be a new LRIP 3 contract and is an estimated unit cost, based on actual data from the AF owned BQM-167A, that is yet to be negotiated at this time. Production quantities increased beginning in FY 2020 & again

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 1 / Subsonic Aerial Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

in FY 2021, in order to meet DDG 1000/ Advanced Missile Defense Radar Testing requirements and support Fleet Live fire with a purpose training events. All cost codes were affected and increased with the increased production quantity.

(2) EM441 Install/Mission Kits: BQM-177A Mission Kits are required to support fleet operations and are used to replicate various threats. Mission kit quantities vary depending on fleet test & evaluation training requirements and are not procured on a one for one basis with air vehicle quantities. The kit procurements are based on a projection of the user demand which is based on the mission profiles required for specific test objectives. Each type of kit is priced differently so the total costs of the kits is not a direct reflection on the quantity of kits being procured. LRIP I & II options were pre-priced in 2012 before development was complete. FY 2020 production costs are based on actuals and are expected to be slightly higher than inflation.

(3) EM442 BQM-177A Other Hardware and Modifications: Funding supports hardware procurements, modifications and other production improvements and Engineering Change Proposals (ECPs) to help subsonic targets keep pace with emerging threats. The total cost may vary from year to year as it depends on the Warfighter and Training demands and costs of the modifications and ECPs. FY 2019 will fund Radome procurement, Power Management Conditioning Unit modifications, and any modifications that arise from completed payload integration flight testing and DT-B2 testing. LRIP I & II options were pre-priced in 2012 before development was complete. FY 2020 production costs are based on actuals and are expected to be slightly higher than inflation.

(4) EM701 Subsonic ground equipment includes peculiar support equipment and flight presentation consumables. LRIP I & II options were pre-priced in 2012 before development was complete. FY 2020 production costs are based on actuals and are expected to be slightly higher than inflation.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 1 / Subsonic Aerial Targets

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) EM031 BQM-177A(†)		2017 (5)	Kratos / Sacramento, CA / Kratos	SS / FFP	NAVAIR	Jun 2017	Jun 2018	31	700.400	Y		Apr 2017
1.1.1) EM031 BQM-177A(†)		2018 (6)	Kratos / Sacramento, CA / Kratos	SS / FFP	NAVAIR	Feb 2018	Jun 2019	30	711.350	Y		Nov 2017
1.1.1) EM031 BQM-177A(†)		2019 (7)	Kratos / Sacramento, CA@Kratos / Kratos	SS / FFP	NAVAIR	May 2019	Apr 2020	30	788.599	Y		Aug 2018
1.1.1) EM031 BQM-177A(†)	✓	2020 (8)	Kratos / Sacramento, CA@Kratos / Kratos	SS / FFP	NAVAIR	Jan 2020	Jan 2021	40	785.555	Y		May 2019

(†) indicates the presence of a P-21

Footnotes:

(5) The FY 2017 & FY 2018 procurement contracts are pre-negotiated options on the current Engineering and Manufacturing Development (EMD) contract. The RFP Issue date refers to release of a Letter of Intent to exercise these options. CEi was bought out by Kratos Unmanned Systems in 2018.

(6) The FY 2017 & FY 2018 procurement contracts are pre-negotiated options on the current Engineering and Manufacturing Development (EMD) contract. The RFP Issue date refers to release of a Letter of Intent to exercise these options.

(7) The FY 2019 procurement contract will be LRIP 3.

(8) The FY 2020 procurement contract will be the first FRP contract.

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 1 / Subsonic Aerial Targets

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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) EM031 BQM-177A (1)																															
	1	2017	NAVY	31	0	31									A -	-	-	-	-	-	-	-	-	-	-	4	4	4	4	15
	1	2018	NAVY	30	0	30																	A -	-	-	-	-	-	-	30
	2	2019	NAVY	30	0	30																								30
✓	2	2020	NAVY	40	0	40																								40
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 1 / Subsonic Aerial Targets

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) EM031 BQM-177A (1)																															
	1	2017	NAVY	31	16	15	3	3	3	2	1	1	1	1																	0
	1	2018	NAVY	30	0	30	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	3	3	3					0
	2	2019	NAVY	30	0	30								A -	-	-	-	-	-	-	-	-	-	-	1	1	3	3	3	3	16
✓	2	2020	NAVY	40	0	40																A -	-	-	-	-	-	-	-	-	40
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 1 / Subsonic Aerial Targets

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) EM031 BQM-177A (1)																															
	1	2017	NAVY	31	31	0																									0
	1	2018	NAVY	30	30	0																									0
	2	2019	NAVY	30	14	16	3	3	3	3	2	2																			0
✓	2	2020	NAVY	40	0	40	-	-	-	1	2	2	3	4	4	4	4	4	4	4	4										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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 1 / Subsonic Aerial Targets

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	Kratos / Sacramento, CA - Kratos	30	45	70	0	9	12	21	0	4	12	16
2	Kratos / Sacramento, CA@Kratos - Kratos	30	45	70	0	4	12	16	0	4	12	16

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 3 / Supersonic Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	625.847	61.866	64.352	0.000	67.930	67.930
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	625.847	61.866	64.352	0.000	67.930	67.930
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**625.847**	**61.866**	**64.352**	**0.000**	**67.930**	**67.930**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - Other Targets Hardware Cost																		
Recurring Cost																		
1.1.1) EM203 GQM-163A (SSST)(†) (9)	2,890.404	109	315.054	2,897.299	17	49.254	3,045.286	14	42.634	-	-	0.000	3,058.470	18	55.052	3,058.470	18	55.052
1.1.2) EM204 GQM-163A Boosters (10)	-	-	0.000	-	-	3.929	-	-	4.136	-	-	0.000	-	-	4.248	-	-	4.248
Subtotal: Recurring Cost	-	-	*315.054*	-	-	*53.183*	-	-	*46.770*	-	-	*0.000*	-	-	*59.300*	-	-	*59.300*
Subtotal: Flyaway - Other Targets Hardware Cost	**-**	**-**	***315.054***	**-**	**-**	***53.183***	**-**	**-**	***46.770***	**-**	**-**	***0.000***	**-**	**-**	***59.300***	**-**	**-**	***59.300***
Flyaway - Hardware-Other Targets Cost																		
Non Recurring Cost																		
2.1.1) EM443 Hardware Modifications (11)	-	-	0.000	-	-	3.049	-	-	3.661	-	-	0.000	-	-	1.048	-	-	1.048
2.1.2) EM442 Install/ Mission Kits (12)	-	-	21.479	-	-	2.015	-	-	3.614	-	-	0.000	-	-	2.554	-	-	2.554
Subtotal: Non Recurring Cost	-	-	*21.479*	-	-	*5.064*	-	-	*7.275*	-	-	*0.000*	-	-	*3.602*	-	-	*3.602*
Subtotal: Flyaway - Hardware-Other Targets Cost	**-**	**-**	***21.479***	**-**	**-**	***5.064***	**-**	**-**	***7.275***	**-**	**-**	***0.000***	**-**	**-**	***3.602***	**-**	**-**	***3.602***
Flyaway - Other Targets Launch Hardware Cost																		
Non Recurring Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 3 / Supersonic Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
3.1.1) EM702 Ground Equipment (13)	-	-	4.955	-	-	1.213	-	-	1.237	-	-	0.000	-	-	2.470	-	-	2.470
Subtotal: Non Recurring Cost	-	-	*4.955*	-	-	*1.213*	-	-	*1.237*	-	-	*0.000*	-	-	*2.470*	-	-	*2.470*
Subtotal: Flyaway - Other Targets Launch Hardware Cost	**-**	**-**	***4.955***	**-**	**-**	***1.213***	**-**	**-**	***1.237***	**-**	**-**	***0.000***	**-**	**-**	***2.470***	**-**	**-**	***2.470***
Flyaway - GQM-163A Long Lead Item Cost																		
Recurring Cost																		
4.1.1) Long Lead Credit	-	-	-4.137	-	-	-0.623	-	-	-0.585	-	-	0.000	-	-	-0.663	-	-	-0.663
4.1.2) Long Lead Components (14)	-	-	4.497	-	-	0.585	-	-	0.663	-	-	0.000	-	-	0.735	-	-	0.735
Subtotal: Recurring Cost	-	-	*0.360*	-	-	*-0.038*	-	-	*0.078*	-	-	*0.000*	-	-	*0.072*	-	-	*0.072*
Subtotal: Flyaway - GQM-163A Long Lead Item Cost	**-**	**-**	***0.360***	**-**	**-**	***-0.038***	**-**	**-**	***0.078***	**-**	**-**	***0.000***	**-**	**-**	***0.072***	**-**	**-**	***0.072***
Flyaway - Other Targets FY06 and PRIOR Cost																		
Non Recurring Cost																		
5.1.1) Non Recurring Cost	-	-	250.054	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*250.054*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway - Other Targets FY06 and PRIOR Cost	**-**	**-**	***250.054***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support Cost																		
6.1) EM852 Production Engineering Support	-	-	33.945	-	-	2.444	-	-	2.492	-	-	0.000	-	-	2.486	-	-	2.486
6.2) EM853 NSWC WSMR ARAV Target Support (OCO Funds) (15)	-	-	0.000	-	-	0.000	-	-	6.500	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support Cost	**-**	**-**	***33.945***	**-**	**-**	***2.444***	**-**	**-**	***8.992***	**-**	**-**	***0.000***	**-**	**-**	***2.486***	**-**	**-**	***2.486***
Gross/Weapon System Cost	**-**	**-**	**625.847**	**-**	**-**	**61.866**	**-**	**-**	**64.352**	**-**	**-**	**0.000**	**-**	**-**	**67.930**	**-**	**-**	**67.930**

Remarks:
Supersonic Targets Set was previously identified as "other Targets". Name has been updated to more accurately reflect the target portfolio that this P-5 Set represents.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 3 / Supersonic Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

(†) indicates the presence of a P-5a

Footnotes:

(9) EM203 GQM-163A unit costs reflect ladder step pricing. $6.5M of FY 2020 Enduring Requirements OCO funds are to procure 1 GQM-163A target in support of the Formidable Shield exercise.

(10) EM204 GQM-163A Boosters were broken out separately commencing in FY 2018 because they are not produced by the OEM and are contracted via different activities. Including the Boosters in the Target cost element, EM203, was artificially skewing the unit cost.

(11) EM443 Hardware Modifications support engineering change proposals and other modifications necessary to ensure supersonic targets keep pace with emerging threats. These costs were originally included in the EM203 GQM-163A targets cost element but were broken out commencing in FY 2018 because they are contracted via different means and were artificially inflating unit costs of the GQM-163A targets. The cost and type of hardware modifications vary from each FY depending upon current threats, and fleet test and training requirements.

(12) EM442 Install/Mission Kits: Mission kit quantities vary depending on fleet test & evaluation training requirements and are not procured on a one for one basis with air vehicle quantities. The kit procurements are based on a projection of the user demand which is based on the mission profiles required for specific test objectives. Each type of kit is priced differently so the total costs of the kits is not a direct reflection on the quantity of kits being procured. The varying demand and cost of the mission kits accounts for the increases and decreases of this cost element from year to year.

(13) EM702 Ground Equipment includes peculiar support equipment and flight presentation consumables. Costs increase commencing in FY 2020 and FY 2021 with GMQ-163A quantity increase.

(14) Long lead component funds are required for the procurement of D6AC steel for production of GQM-163A ducted rocket housings. The FY 2019 long lead procurement is for the FY 2020 target buy.

(15) Cost Code EM853 were FY19 OCO funds sent to the Aerial Targets Line Item to be executed in support of 6th Fleet Formidable shield exercise for procurement of one Aegis Readiness Assessment Vehicle (ARAV) target, not a GQM-163A target.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 3 / Supersonic Targets

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) EM203 GQM-163A (SSST)(†)		2016 (16)	NORTHROP GRUMMAN INNOVATION SYSTEMS (17) / CHANDLER AZ	SS / FFP	NAVAIR	Jul 2016	Nov 2018	5	4,410.000	Y		Feb 2016
1.1.1) EM203 GQM-163A (SSST)(†)		2017 (18)	NORTHROP GRUMMAN INNOVATION SYSTEMS (17) / CHANDLER AZ	SS / FFP	NAVAIR	Mar 2018	Jul 2020	24	2,645.333	Y		Dec 2016
1.1.1) EM203 GQM-163A (SSST)(†)		2018 (19)	NORTHROP GRUMMAN INNOVATION SYSTEMS (17) / CHANDLER AZ	SS / FFP	NAVAIR	Jul 2018	Jul 2021	17	2,897.299	Y		Dec 2016
1.1.1) EM203 GQM-163A (SSST)(†)		2019 (20)	NORTHROP GRUMMAN INNOVATION SYSTEMS (17) / CHANDLER AZ	SS / FFP	NAVAIR	Dec 2018	Apr 2022	14	3,045.286	Y		Dec 2016
1.1.1) EM203 GQM-163A (SSST)(†)	✓	2020 (21)	NORTHROP GRUMMAN INNOVATION SYSTEMS (17) / CHANDLER AZ	SS / FFP	NAVAIR	Oct 2019	Apr 2023	18	3,058.470	Y		Aug 2018

(†) indicates the presence of a P-21

Footnotes:

(16) FRP10

(17) The maximum production rate is currently limited to 24 units due to the availability of Government Furnished Property (GFP) and OEM limitations. The program is exploring GFP alternatives in order to increase the maximum procurement rate to 32 units per year.

(18) FRP11 includes a base plus pre-negotiated options for the following two production lots (FRP12 and FRP13).

(19) FRP12 was a pre-negotiated option that is negotiated in conjunction with the FRP11 contract.

(20) FRP13 was a pre-negotiated option that is negotiated in conjunction with the FRP11 contract.

(21) FY 2020 Enduring Requirements OCO funds recieved to procure one GQM-163A target in support of the Formidable Shield Exercise

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 3 / Supersonic Targets

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
										Calendar Year 2016												Calendar Year 2017									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) EM203 GQM-163A (SSST) (9)																															
Prior Years Deliveries: 80																															
	1	2016	NAVY	5	0	5										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
	1	2016	FMS (‡)	3	0	3										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	**2016**	**Total**	**8**	**0**	**8**										**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8**
	1	2017	NAVY	24	0	24																									24
	1	2018	NAVY	17	0	17																									17
	1	2018	FMS (‡)	3	0	3																									3
	1	**2018**	**Total**	**20**	**0**	**20**																									**20**
	1	2019	NAVY	14	0	14																									14
	1	2019	FMS (‡)	1	0	1																									1
	1	**2019**	**Total**	**15**	**0**	**15**																									**15**
✓	1	2020	NAVY	18 (22)	0	18																									18
✓	1	2020	FMS (‡)	1	0	1																									1
✓	**1**	**2020**	**Total OCO**	**19**	**0**	**19**																									**19**
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 3 / Supersonic Targets

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) EM203 GQM-163A (SSST) (9)																															
Prior Years Deliveries: 80																															
	1	2016	NAVY	5	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-				0
	1	2016	FMS (‡)	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1				0
	1	**2016**	**Total**	**8**	**0**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**-**	**-**	**-**	**0**
	1	2017	NAVY	24	0	24						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
	1	2018	NAVY	17	0	17										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
	1	2018	FMS (‡)	3	0	3										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	**2018**	**Total**	**20**	**0**	**20**										**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**20**
	1	2019	NAVY	14	0	14															A -	-	-	-	-	-	-	-	-	-	14
	1	2019	FMS (‡)	1	0	1															A -	-	-	-	-	-	-	-	-	-	1
	1	**2019**	**Total**	**15**	**0**	**15**															**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**15**
✓	1	2020	NAVY	18 (22)	0	18																									18
✓	1	2020	FMS (‡)	1	0	1																									1
✓	**1**	**2020**	**Total OCO**	**19**	**0**	**19**																									**19**
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 3 / Supersonic Targets

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) EM203 GQM-163A (SSST) (9)																															
Prior Years Deliveries: 80																															
	1	2016	NAVY	5	5	0																									0
	1	2016	FMS (‡)	3	3	0																									0
	1	**2016**	**Total**	**8**	**8**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2017	NAVY	24	0	24	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2				0
	1	2018	NAVY	17	0	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	11
	1	2018	FMS (‡)	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	1	**2018**	**Total**	**20**	**0**	**20**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2**	**14**
	1	2019	NAVY	14	0	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
	1	2019	FMS (‡)	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	1	**2019**	**Total**	**15**	**0**	**15**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**15**
✓	1	2020	NAVY	18 (22)	0	18	A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
✓	1	2020	FMS (‡)	1	0	1	A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
✓	**1**	**2020**	**Total OCO**	**19**	**0**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**19**
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2280 / Aerial Targets | **Item Number / Title [DODIC]:** 3 / Supersonic Targets

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) EM203 GQM-163A (SSST) (9)																															
Prior Years Deliveries: 80																															
	1	2016	NAVY	5	5	0																									0
	1	2016	FMS (‡)	3	3	0																									0
	1	**2016**	**Total**	**8**	**8**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2017	NAVY	24	24	0																									0
	1	2018	NAVY	17	6	11	2	2	2	2	1	1	1																		0
	1	2018	FMS (‡)	3	0	3	-	-	-	-	1	1	1																		0
	1	**2018**	**Total**	**20**	**6**	**14**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2019	NAVY	14	0	14	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	2	2							0
	1	2019	FMS (‡)	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-							0
	1	**2019**	**Total**	**15**	**0**	**15**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
✓	1	2020	NAVY	18 (22)	0	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	6
✓	1	2020	FMS (‡)	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
✓	**1**	**2020**	**Total OCO**	**19**	**0**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2**	**2**	**2**	**3**	**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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2 | **P-1 Line Item Number / Title:** 2280 / Aerial Targets | **Item Number / Title [DODIC]:** 3 / Supersonic Targets

Cost Elements (Units in Each)							Fiscal Year 2024												Fiscal Year 2025												BALANCE
										Calendar Year 2024												Calendar Year 2025									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2023	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) EM203 GQM-163A (SSST) (9)																															
Prior Years Deliveries: 80																															
	1	2016	NAVY	5	5	0																									0
	1	2016	FMS (‡)	3	3	0																									0
	1	**2016**	**Total**	**8**	**8**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2017	NAVY	24	24	0																									0
	1	2018	NAVY	17	17	0																									0
	1	2018	FMS (‡)	3	3	0																									0
	1	**2018**	**Total**	**20**	**20**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2019	NAVY	14	14	0																									0
	1	2019	FMS (‡)	1	1	0																									0
	1	**2019**	**Total**	**15**	**15**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
✓	1	2020	NAVY	18 (22)	12	6	1	1	1	1	1	1																			0
✓	1	2020	FMS (‡)	1	1	0	-	-	-	-	-	-																			0
✓	**1**	**2020**	**Total OCO**	**19**	**13**	**6**	**1**	**1**	**1**	**1**	**1**	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 3 / Supersonic Targets

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 INNOVATION SYSTEMS (17) - CHANDLER AZ	6	21	24	10	3	24	27	0	4	31	35

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(17) The maximum production rate is currently limited to 24 units due to the availability of Government Furnished Property (GFP) and OEM limitations. The program is exploring GFP alternatives in order to increase the maximum procurement rate to 32 units per year.
(22) FY 2020 funding totals include $61.4M for OCO for Base Requirements (quantity of 17) and $6.5M for Direct War Overseas Contingency Operations (OCO) (quantity of one),total quantity of 18. The $61.4M Base funding was realigned as part of the OCO funding IAW Department's compliance with the Budget Control Act of 2011.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 4 / Full Scale Aerial Target
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	12.791	0.000	15.492	15.492
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	12.791	0.000	15.492	15.492
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**12.791**	**0.000**	**15.492**	**15.492**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - Hardware Cost																		
Recurring Cost																		
1.1.1) EMA11 QF-16 FSAT Production(†) (23)	-	-	0.000	-	-	0.000	1,398.296	2	2.797	-	-	0.000	1,426.261	2	2.853	1,426.261	2	2.853
1.1.2) EMA12 QF-16 FSAT Hardware (24)	-	-	0.000	-	-	0.000	-	-	9.354	-	-	0.000	-	-	11.987	-	-	11.987
Subtotal: Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*12.151*	-	-	*0.000*	-	-	*14.840*	-	-	*14.840*
Subtotal: Flyaway - Hardware Cost	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***12.151***	**-**	**-**	***0.000***	**-**	**-**	***14.840***	**-**	**-**	***14.840***
Support - Production Support Cost																		
2.1) EM890 Production Management	-	-	0.000	-	-	0.000	-	-	0.150	-	-	0.000	-	-	0.153	-	-	0.153
2.2) EM855 Production Engineering	-	-	0.000	-	-	0.000	-	-	0.490	-	-	0.000	-	-	0.499	-	-	0.499
Subtotal: Support - Production Support Cost	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.640***	**-**	**-**	***0.000***	**-**	**-**	***0.652***	**-**	**-**	***0.652***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**12.791**	**-**	**-**	**0.000**	**-**	**-**	**15.492**	**-**	**-**	**15.492**

(†) indicates the presence of a P-5a

Footnotes:

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2280 / Aerial Targets	**Item Number / Title [DODIC]:** 4 / Full Scale Aerial Target
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(23) EMA11 QF-16 FSAT Production funds the Boeing F-16 contract at Eglin AFB and is not indicative of true unit costs of one QF-16 target. The quantities and price purchased via contract varies per year and is based on the procurement agreement between the United States(US) Navy and the US Air Force. The total cost of the QF-16 target includes EMA12 QF-16 Hardware/ regeneration efforts as well.

(24) EMA12 QF-16 Hardware funds the regeneration of drones and engines; including the parts and associated support. The regeneration costs can vary per year based on the amount of needed modernization, however, it is proportional to the number of units procured. This includes the costs of regeneration efforts at US Air Force AMARG and Edwards AFBs and is included in the total flyaway cost of the QF-16 targets. Hardware also includes the procurement of equipment for range operations at Pt Mugu. FY 2020 hardware costs increase slightly more than inflation due to increased projected Pt Mugu operations, costs of equipment needed, and other associated hardware.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 4 / Full Scale Aerial Target

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 ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) EMA11 QF-16 FSAT Production		2019	BOEING INC [25] / ST LOUIS, MO	SS / FFP	Eglin AFB, FL	Apr 2019	Apr 2021	2	1,398.296	Y		Oct 2017
1.1.1) EMA11 QF-16 FSAT Production	✓	2020	BOEING INC [25] / ST LOUIS, MO	SS / FFP	Eglin AFB, FL	Apr 2020	Apr 2022	2	1,426.261	Y		Oct 2017

Footnotes:

[25] Production rates are based on joint procurements between the United States Air Force and the United States Navy.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 5 / Aux / Aug System Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	2,436.098	19.800	17.006	0.000	19.904	19.904
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,436.098	19.800	17.006	0.000	19.904	19.904
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,436.098**	**19.800**	**17.006**	**0.000**	**19.904**	**19.904**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway - Aux/Aug Sys Targets Hardware Cost																		
Recurring Cost																		
1.1.1) EM304 ECM/ Emitter Equipment	-	-	53.083	-	-	6.800	-	-	6.998	-	-	0.000	-	-	7.074	-	-	7.074
1.1.2) EM307 Target Common Avionics Equipment [26]	-	-	12.101	-	-	8.195	-	-	5.109	-	-	0.000	-	-	7.835	-	-	7.835
Subtotal: Recurring Cost	-	-	*65.184*	-	-	*14.995*	-	-	*12.107*	-	-	*0.000*	-	-	*14.909*	-	-	*14.909*
Non Recurring Cost																		
1.2.1) Prior Year No Longer Procured	-	-	334.305	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*334.305*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway - Aux/Aug Sys Targets Hardware Cost	**-**	**-**	***399.489***	**-**	**-**	***14.995***	**-**	**-**	***12.107***	**-**	**-**	***0.000***	**-**	**-**	***14.909***	**-**	**-**	***14.909***
Flyaway - Aux/Aug Sys Targets FY06 and PRIOR Cost																		
Non Recurring Cost																		
2.1.1) Prior year costs no longer financed beyond 1995	-	-	1,992.884	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*1,992.884*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway - Aux/ Aug Sys Targets FY06 and PRIOR Cost	**-**	**-**	***1,992.884***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2280 / Aerial Targets	Item Number / Title [DODIC]: 5 / Aux / Aug System Targets
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Support - Aux/Aug Sys Targets Support Cost																		
3.1) EM823 Training Equipment	-	-	1.929	-	-	0.194	-	-	0.197	-	-	0.000	-	-	0.200	-	-	0.200
3.2) EM853 Production Engineering Support	-	-	33.636	-	-	3.715	-	-	3.789	-	-	0.000	-	-	3.864	-	-	3.864
3.3) EM863 Integrated Logistics Support (ILS)	-	-	6.873	-	-	0.816	-	-	0.832	-	-	0.000	-	-	0.848	-	-	0.848
3.4) EM873 Documentation	-	-	1.287	-	-	0.080	-	-	0.081	-	-	0.000	-	-	0.083	-	-	0.083
Subtotal: Support - Aux/Aug Sys Targets Support Cost	**-**	**-**	***43.725***	**-**	**-**	***4.805***	**-**	**-**	***4.899***	**-**	**-**	***0.000***	**-**	**-**	***4.995***	**-**	**-**	***4.995***
Gross/Weapon System Cost	**-**	**-**	**2,436.098**	**-**	**-**	**19.800**	**-**	**-**	**17.006**	**-**	**-**	**0.000**	**-**	**-**	**19.904**	**-**	**-**	**19.904**

Footnotes:

(26) EM307 Target Common Avionics Equipment increased from FY 2019 to FY 2020, FY 2021 to FY 2022, and FY 2022 to FY 2023 to support procurements of Aerial Target Mission Support System to deliver high interest Fleet training.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2285 / Drones and Decoys

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204162N	Other Related Program Elements: 0604659N

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	30	30	68	150	250	250	-	748
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	0.000	0.000	20.000	20.000	41.291	84.166	133.728	136.403	-	415.588
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	20.000	20.000	41.291	84.166	133.728	136.403	-	415.588
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**20.000**	**20.000**	**41.291**	**84.166**	**133.728**	**136.403**	**-**	**415.588**
(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)*	-	-	-	-	666,666.67	666,666.67	607,220.59	561,106.67	534,912.00	545,612.00	-	555,598.93

Description:

FY 2020 funding totals include $0.0M for Base and $20M for Overseas Contingency Operations (OCO); of which $20M and 30 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This program is a new start in FY 2020. The Drones and Decoys Line Item (LI) supports the air-launched electronic warfare (EW) systems capability; through the integration of a Navy variant of the Miniature Air Launched Decoy (MALD). EW is an integral war-fighting effect supporting combatant commander integrated priorities, as well as Joint or Coalition operations. EW systems influence, deceive, disrupt, degrade, deny and destroy threats throughout the electromagnetic spectrum to airborne and air-launched systems and their operations. EW includes air-launched electronic attack (EA) as well as elements of electronic support (ES) and electronic protection (EP). EA provides self-protection capabilities to other weapon systems through active and passive measures that deceive threats to airborne and air-launched systems and their operations by using kinetic and non-kinetic means to defeat threats that rely on the electromagnetic spectrum (Radio Frequency (RF), Electro-Optical (EO), Infrared (IR). The ES capabilities support the collection, analysis, and dissemination of information related to the detection, geo-location, characterization, and identification of threats to airborne and air-launched systems and their operations. An air-launched EW system with stand-in capability increases the range and duration of EW systems while providing flexibility to commanders for employment.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2285 / Drones and Decoys	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** 0204162N	**Other Related Program Elements:** 0604659N
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Drones and Decoys	P-5a, P-21			- / 0.000	- / 0.000	- / 0.000	- / 0.000	30 / 20.000	30 / 20.000
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / 0.000**	**30 / 20.000**	**30 / 20.000**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
This BLI supports the Navy variant of the Miniature Air Launched Decoy (MALD). FY 2020 funding is for the procurement of 30 MALD-N's, containers, cables and associated support. The FY 2020 assets will provide an Early Operational Capability (EOC) delivery in FY 2021, which will allow the fleet to begin tactics development and training activities.

MALD is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of MALD has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically MALD directly contributes to building a more lethal force and is a critical enabler for joint lethality in contested environments; deterring adversaries from aggression and evolves innovative operational concepts.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2285 / Drones and Decoys	Item Number / Title [DODIC]: 1 / Drones and Decoys
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	30	30
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	0.000	0.000	20.000	20.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	20.000	20.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**20.000**	**20.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	666,666.67	666,666.67

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) MALD Minature Air Launched Decoy(†) (1)	-	-	-	-	-	-	-	-	-	-	-	0.000	649,300.00	30	19.479	649,300.00	30	19.479
1.1.2) Containers(†) (2)	-	-	-	-	-	-	-	-	-	-	-	0.000	11,079.20	30	0.332	11,079.20	30	0.332
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	*0.000*	-	-	*19.811*	-	-	*19.811*
Subtotal: Hardware Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***19.811***	**-**	**-**	***19.811***
Support Cost																		
3.1) GIH Production Support	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.189	-	-	0.189
Subtotal: Support Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***0.189***	**-**	**-**	***0.189***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**666,666.67**	**30**	**20.000**	**666,666.67**	**30**	**20.000**

(†) indicates the presence of a P-5a

Footnotes:

(1) Cost Element 1.1.1 (MALD) $20M was rephased from FY2021 to FY 2020 to procure 30 MALD-Ns. Unit Cost based on NAVAIR 4.2 Cost Estimate. FY 2024 completes production of the MALD-N; Cost to complete removed.

(2) Ratio of containers to MALD is 1:1

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2285 / Drones and Decoys	**Item Number / Title [DODIC]:** 1 / Drones and Decoys

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) MALD Minature Air Launched Decoy(†)	✓	2020 (3)	Raytheon CO / Tucson AZ	SS / FP	NAVAIR	Nov 2019	Nov 2020	30	649,300.00	N	Jan 2019	Feb 2019
1.1.2) Containers	✓	2020 (4)	TBD / TBD	C / TBD	NSWC,IHD	Jan 2020	Jan 2021	30	11,079.20	N	Jan 2019	Feb 2019

(†) indicates the presence of a P-21

Footnotes:

(3) The award date represents the initial U.S. Navy Procurements.

(4) Containers to be competed - Will be awarded to Lowest Price Technically Acceptable (LPTA) via competitively awarded IDIQs

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2285 / Drones and Decoys	**Item Number / Title [DODIC]:** 1 / Drones and Decoys

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) MALD Minature Air Launched Decoy (1)																															
✓	1	2020	NAVY	30 (5)	0	30		A -	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	3	3	3	3	3	3	3	0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2285 / Drones and Decoys	**Item Number / Title [DODIC]:** 1 / Drones and Decoys

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 CO - Tucson AZ	20	480	480	0	2	12	14	0	2	12	14

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(5) Notional delivery dates. No proposal timeline at this time. Based on current production capacity.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2290 / Other Missile Support

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	53.832	3.420	3.318	0.000	3.388	3.388	3.458	3.528	3.603	3.676	-	78.223
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	53.832	3.420	3.318	0.000	3.388	3.388	3.458	3.528	3.603	3.676	-	78.223
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**53.832**	**3.420**	**3.318**	**0.000**	**3.388**	**3.388**	**3.458**	**3.528**	**3.603**	**3.676**	**-**	**78.223**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	1.032	0.407	0.000	1.382	1.382	-	-	-	-	-	2.821
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $3.388M for Overseas Contingency Operations (OCO); of which $3.388M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The MK-41 Vertical Launching System (VLS) is a surface combatant missile launching system designed to store, select, and launch various Standard Missile configurations, Tomahawk, Tactical Tomahawk, Evolved Seasparrow (ESSM) and Vertical Launch Anti-Submarine Rocket (ASROC) (VLA) missiles. The MK-41 VLS significantly improves missile capacity, flexibility, multi-mission capability, reaction time, rate of fire, and is designed to be adaptable to present and future weapon systems. Current configurations are: two 61 cell launchers (forward and aft) for 22 TICONDEROGA (CG 47) Class Cruisers beginning with CG-52, one 61 cell aft and one 29 cell launcher forward for 28 ARLEIGH BURKE (DDG 51) Class Destroyers, one 64 cell launcher aft and one 32 cell launcher forward for 34 DDG 51 FLT IIA ships.

[P5 / CANISTER EQUIPMENT]: Funds procurement and installation of canister and gas management hardware Engineering Change Proposals (ECPs) and Ordnance Alterations (ORDALTs).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2290 / Other Missile Support	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Other Missile Support				- / 53.832	- / 3.420	- / 3.318	- / 0.000	- / 3.388	- / 3.388
P-40	**Total Gross/Weapon System Cost**				**- / 53.832**	**- / 3.420**	**- / 3.318**	**- / 0.000**	**- / 3.388**	**- / 3.388**

*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:

Funds are required for production support and Integrated Logistics Support (ILS) including: supply support, provisioning and technical documentation in support of weapon stations, All Up Round (AUR) facilities, and the fleet. Funds also provide for development and procurement of critical Engineering Change Proposals (ECP) and Ordnance Alterations (ORDALT) that improve reliability and implement safety upgrades for MK-41 VLS canisters and gas management hardware. Availability of upgraded canisters, canister hardware, and gas management hardware directly impacts fleet loadouts, operational availability, and safety.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2290 / Other Missile Support	**Item Number / Title [DODIC]:** 1 / Other Missile Support
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	53.832	3.420	3.318	0.000	3.388	3.388
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	53.832	3.420	3.318	0.000	3.388	3.388
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**53.832**	**3.420**	**3.318**	**0.000**	**3.388**	**3.388**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	1.032	0.407	0.000	1.382	1.382
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Flyaway Cost																		
Recurring Cost																		
1.1.1) CANISTER EQUIPMENT [1]	-	-	46.562	-	-	1.338	-	-	1.304	-	-	0.000	-	-	1.368	-	-	1.368
Subtotal: Recurring Cost	-	-	*46.562*	-	-	*1.338*	-	-	*1.304*	-	-	*0.000*	-	-	*1.368*	-	-	*1.368*
Subtotal: Flyaway Cost	**-**	**-**	***46.562***	**-**	**-**	***1.338***	**-**	**-**	***1.304***	**-**	**-**	***0.000***	**-**	**-**	***1.368***	**-**	**-**	***1.368***
Support Cost																		
2.1) ILS SUPPORT	-	-	7.270	-	-	2.082	-	-	2.014	-	-	0.000	-	-	2.020	-	-	2.020
Subtotal: Support Cost	**-**	**-**	***7.270***	**-**	**-**	***2.082***	**-**	**-**	***2.014***	**-**	**-**	***0.000***	**-**	**-**	***2.020***	**-**	**-**	***2.020***
Gross/Weapon System Cost	**-**	**-**	**53.832**	**-**	**-**	**3.420**	**-**	**-**	**3.318**	**-**	**-**	**0.000**	**-**	**-**	**3.388**	**-**	**-**	**3.388**

Footnotes:

[1] Funds increased from FY 2019 to FY 2020 to support NSWC DD, PHD & IHD with the procurement, logistics, and management issues for the MK10 explosive bolts related to canister issues. NSWC DD: Naval Surface Warfare Center-Dahlgren Division; NSWC PHD: Naval Surface Warfare Center-Port Hueneme Division; NSWC IHD: Naval Surface Warfare Center-Indian Head Division

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2291 / LRASM

ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 0204167N	**Other Related Program Elements:** 0604786N
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	15	34	35	-	48	48	48	48	48	48	-	324
Gross/Weapon System Cost *($ in Millions)*	56.943	107.733	111.190	0.000	143.200	143.200	143.999	143.999	143.999	143.999	-	995.062
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	56.943	107.733	111.190	0.000	143.200	143.200	143.999	143.999	143.999	143.999	-	995.062
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**56.943**	**107.733**	**111.190**	**0.000**	**143.200**	**143.200**	**143.999**	**143.999**	**143.999**	**143.999**	**-**	**995.062**
(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)*	3,796K	3,169K	3,177K	-	2,983K	2,983K	3,000K	3,000K	3,000K	3,000K	-	3,071K

Description:

FY 2020 funding totals include $0.0M for Base and $143.2M for Overseas Contingency Operations (OCO); of which $143.2M and 48 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Long Range Anti-Ship Missile (LRASM) is Increment 1 of the Offensive Anti-Surface Warfare (OASuW) weapon development program. LRASM will be a key air launched component of the Navy's overall Cruise Missile Strategy. The Department has transitioned the Defense Advanced Research Projects Agency (DARPA) / Office of Naval Research (ONR) LRASM demonstration design into a fielded weapon system which supports an increased offensive strike capability with an Early Operational Capability (EOC) for U.S. Air Force B-1 and U.S. Navy F/A-18E/F. In response to U.S. Pacific Command Urgent Operation Need (UON) statement, LRASM is intended to provide the first increment of the next generation ASuW capabilities addressing the most urgent air-launched requirement, significantly reducing joint force warfighting risks, and positioning the Department to address evolving surface warfare threats. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM directly contributes to building a more lethal force and is a critical enabler for joint lethality in contested environments; deterring adversaries from aggression; ensuring common domains remain open and maintaining favorable regional balances of power.

The U.S. Air Force procurement for LRASMs in FY 2017 through FY 2019 at the following quantities:
FY 2017 - 19 (Lot 1)
FY 2018 - 16 (1 unit was priced at and part of FY 2017 Lot 1 to achieve 20 total Air Force units in Lot 1; 15 units are with FY 2018 Lot 2 procurement)
FY 2019 - 15 (Lot 3)

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2291 / LRASM	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 0204167N	**Other Related Program Elements:** 0604786N
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / LRASM	P-5a, P-21			15 / 56.943	34 / 107.733	35 / 111.190	- / 0.000	48 / 143.200	48 / 143.200
P-40	**Total Gross/Weapon System Cost**				**15 / 56.943**	**34 / 107.733**	**35 / 111.190**	**- / 0.000**	**48 / 143.200**	**48 / 143.200**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 funding procures a total of 48 Long Range Anti-Ship Missiles (LRASM).

LRASM development/fielding is funded to focus on meeting the time-critical requirements, while accepting manageable levels of technical risk, and is utilizing the DoD Instruction 5000.02 Model 4 Accelerated Acquisition process to achieve speed to the fleet. The program's funding profile was developed to enable fielding at the time required by the warfighter. Due to the accelerated nature of the program's acquisition strategy, volatility in the funding profile has an intensified impact on the program's ability to meet the early operational requirements, and any reduction in funding will increase risk to fielding the required capability at the specified time.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2291 / LRASM	Item Number / Title [DODIC]: 1 / LRASM
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	15	34	35	-	48	48
Gross/Weapon System Cost *($ in Millions)*	56.943	107.733	111.190	0.000	143.200	143.200
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	56.943	107.733	111.190	0.000	143.200	143.200
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**56.943**	**107.733**	**111.190**	**0.000**	**143.200**	**143.200**
(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)*	3,796K	3,169K	3,177K	-	2,983K	2,983K

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - LRASM Cost																		
Recurring Cost																		
1.1.1) All Up Round (AUR)(†) (1)	3,772K	15	56.576	3,135K	34	106.585	3,130K	35	109.547	-	-	0.000	2,944K	48	141.294	2,944K	48	141.294
1.1.2) Contractor ECO	-	-	-	-	-	0.260	-	-	0.265	-	-	0.000	-	-	0.270	-	-	0.270
Subtotal: Recurring Cost	-	-	*56.576*	-	-	*106.845*	-	-	*109.812*	-	-	*0.000*	-	-	*141.564*	-	-	*141.564*
Subtotal: Hardware - LRASM Cost	**-**	**-**	***56.576***	**-**	**-**	***106.845***	**-**	**-**	***109.812***	**-**	**-**	***0.000***	**-**	**-**	***141.564***	**-**	**-**	***141.564***
Hardware - Nonrecurring and Ancillary Equip Cost																		
Non Recurring Cost																		
2.1.1) Containers (2)	-	-	0.208	-	-	0.510	-	-	0.525	-	-	0.000	-	-	0.720	-	-	0.720
Subtotal: Non Recurring Cost	-	-	*0.208*	-	-	*0.510*	-	-	*0.525*	-	-	*0.000*	-	-	*0.720*	-	-	*0.720*
Subtotal: Hardware - Nonrecurring and Ancillary Equip Cost	**-**	**-**	***0.208***	**-**	**-**	***0.510***	**-**	**-**	***0.525***	**-**	**-**	***0.000***	**-**	**-**	***0.720***	**-**	**-**	***0.720***
Support Cost																		
3.1) Production Support (3)	-	-	0.159	-	-	0.378	-	-	0.853	-	-	0.000	-	-	0.916	-	-	0.916
Subtotal: Support Cost	**-**	**-**	***0.159***	**-**	**-**	***0.378***	**-**	**-**	***0.853***	**-**	**-**	***0.000***	**-**	**-**	***0.916***	**-**	**-**	***0.916***
Gross/Weapon System Cost	**3,796K**	**15**	**56.943**	**3,169K**	**34**	**107.733**	**3,177K**	**35**	**111.190**	**-**	**-**	**0.000**	**2,983K**	**48**	**143.200**	**2,983K**	**48**	**143.200**

(†) indicates the presence of a P-5a

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2291 / LRASM	**Item Number / Title [DODIC]:** 1 / LRASM
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Footnotes:

(1) Cost Code 1.1.1 FY 2020 is the first year of production for LRASM 1.1 configuration. FY 2018 budget value does not reflect $14.5M BTR received to achieve 34 units procured in November 2018 ($3.56M unit price includes contingent liability).

(2) Cost Code 2.1.1 (Containers) Ratio of containers to AURs is 1:1.

(3) Cost Code 3.1 (Production Support) includes government and contractor production related support. Production support increases from FY 2019 to FY 2020 due to increased unit orders and deliveries occurring.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2291 / LRASM	Item Number / Title [DODIC]: 1 / LRASM

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) All Up Round (AUR)(†)		2017 (4)	Lockheed Martin Missiles and Fire Control (5) / Orlando, FL	SS / FPIF	Eglin AFB	Jul 2017	Sep 2018	15	3,772K	Y		Oct 2015
1.1.1) All Up Round (AUR)(†)		2018 (6)	Lockheed Martin Missiles and Fire Control (5) / Orlando, FL	SS / FPIF	Eglin AFB	Nov 2018	Sep 2020	34	3,135K	Y		Jun 2017
1.1.1) All Up Round (AUR)(†)		2019 (7)	Lockheed Martin Missiles and Fire Control (5) / Orlando, FL	SS / FPIF	Eglin AFB	Aug 2019	Sep 2021	35	3,130K	Y		Jan 2019
1.1.1) All Up Round (AUR)(†)	✓	2020 (8)	Lockheed Martin Missiles and Fire Control (5) / Orlando, FL	SS / FP	Eglin AFB	Jun 2020	Sep 2022	48	2,944K	N	Jan 2019	Dec 2019

(†) indicates the presence of a P-21

Footnotes:

(4) Award date represents the initial U.S. Air Force and U.S. Navy procurements. The LRASM program received approval in February 2017 to proceed to production.

(5) FY 2017 Initial Procurement Lead Time represents time from award to delivery of first Air Force AUR (Sep-18) to meet B-1B EOC; followed by delivery of Navy AURs to meet F/A-18 EOC (FY19).

(6) Award date represents actual for both U.S. Air Force and U.S. Navy procurements.

(7) Award date represents both U.S. Air Force and U.S. Navy procurements.

(8) Award date represents U.S. Navy procurement.

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2291 / LRASM	**Item Number / Title [DODIC]:** 1 / LRASM

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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) All Up Round (AUR) [1]																															
	1	2017	NAVY	15 [9]	0	15										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
	1	2017	AF [‡]	19	0	19										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	8	11
	1	**2017**	**Total**	**34**	**0**	**34**										**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8**	**26**
	1	2018	NAVY	34	0	34																									34
	1	2018	AF [‡]	16	0	16																									16
	1	**2018**	**Total**	**50**	**0**	**50**																									**50**
	1	2019	NAVY	35	0	35																									35
	1	2019	AF [‡]	15	0	15																									15
	1	**2019**	**Total**	**50**	**0**	**50**																									**50**
✓	1	2020	NAVY	48	0	48																									48
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2291 / LRASM	**Item Number / Title [DODIC]:** 1 / LRASM

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019															Calendar Year 2020									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) All Up Round (AUR) [1]																															
	1	2017	NAVY	15 [9]	0	15	-	-	-	-	-	3	3	3	1	-	-	-	-	-	-	2	2	-	-	-	-	-	1		0
	1	2017	AF [‡]	19	8	11	1	-	1	-	-	-	-	-	-	1	1	1	2	2	2	-	-	-	-	-	-	-	-		0
	1	**2017**	**Total**	**34**	**8**	**26**	**1**	**-**	**1**	**-**	**-**	**3**	**3**	**3**	**1**	**1**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**0**
	1	2018	NAVY	34	0	34		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	30
	1	2018	AF [‡]	16	0	16		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
	1	**2018**	**Total**	**50**	**0**	**50**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	**46**
	1	2019	NAVY	35	0	35											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	35
	1	2019	AF [‡]	15	0	15											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	15
	1	**2019**	**Total**	**50**	**0**	**50**											**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**50**
✓	1	2020	NAVY	48	0	48																					A -	-	-	-	48
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2291 / LRASM	**Item Number / Title [DODIC]:** 1 / LRASM

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) All Up Round (AUR) (1)																															
	1	2017	NAVY	15 (9)	15	0																									0
	1	2017	AF (‡)	19	19	0																									0
	1	**2017**	**Total**	**34**	**34**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2018	NAVY	34	4	30	4	4	4	4	4	4	4	2	-	-	-														0
	1	2018	AF (‡)	16	0	16	-	-	-	-	-	-	-	2	4	5	5														0
	1	**2018**	**Total**	**50**	**4**	**46**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**5**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**
	1	2019	NAVY	35	0	35	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	3	-	-	-		0
	1	2019	AF (‡)	15	0	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	5	5		0
	1	**2019**	**Total**	**50**	**0**	**50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**5**	**-**	**0**
✓	1	2020	NAVY	48	0	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	44
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2291 / LRASM	**Item Number / Title [DODIC]:** 1 / LRASM

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) All Up Round (AUR) (1)																															
	1	2017	NAVY	15 (9)	15	0																									0
	1	2017	AF (‡)	19	19	0																									0
	1	**2017**	**Total**	**34**	**34**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2018	NAVY	34	34	0																									0
	1	2018	AF (‡)	16	16	0																									0
	1	**2018**	**Total**	**50**	**50**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
	1	2019	NAVY	35	35	0																									0
	1	2019	AF (‡)	15	15	0																									0
	1	**2019**	**Total**	**50**	**50**	**0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
✓	1	2020	NAVY	48	4	44	4	4	4	4	4	4	4	4	4	4	4														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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2291 / LRASM	**Item Number / Title [DODIC]:** 1 / LRASM

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 Missiles and Fire Control (5) - Orlando, FL	12	50	50	0	10	14	24	0	9	27	36

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(5) FY 2017 Initial Procurement Lead Time represents time from award to delivery of first Air Force AUR (Sep-18) to meet B-1B EOC; followed by delivery of Navy AURs to meet F/A-18 EOC (FY19).
(9) Air Force Lot 1 procurement is 20 actual units - FY 2017 dollars procured 19 units, FY 2018 dollars procured 1 unit. Navy Lot 1 procurement is 14 units; Lot 2 procured 1 unit with FY17 dollars. Lot 1 procurement consisted of three separate awards, extending the funded delivery until February 2020.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2292 / LCS OTH Missile

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	8	-	18	18	15	16	26	26	Continuing	Continuing
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	18.156	0.000	38.137	38.137	32.975	33.585	49.371	50.451	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	18.156	0.000	38.137	38.137	32.975	33.585	49.371	50.451	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**18.156**	**0.000**	**38.137**	**38.137**	**32.975**	**33.585**	**49.371**	**50.451**	**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)*	-	-	2,270K	-	2,119K	2,119K	2,198K	2,099K	1,899K	1,940K	Continuing	Continuing

Description:

FY 2020 funding totals include $0.0M for Base and $38.137M for Overseas Contingency Operations (OCO); of which $38.137M and 18 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Over The Horizon (OTH) missile provides the Littoral Combat Ship/Frigate (LCS/FFG(X)) with long range anti-surface offensive capability against surface combatants.
The OTH Weapon Systems (WS) consists of a Missile Launch System and a complement of missiles.
- Missile Launch System components include: a Launch Mechanism, Operator Interface, and Fire Control System which are procured with Other Procurement, Navy Funds.
- Missile components include a missile encased in a firing canister (encanistered missile). An encanistered missile consists of a flight vehicle that is mechanically and electrically connected within a weapon canister. The flight vehicle's major components are operationally joined, consisting of a warhead (explosive), propulsion system, guidance system, initiation system, and other components. The weapon canister is a mechanical structure with electrical interconnections that is used to support and restrain the flight vehicle during loading and unloading operations. The weapon canister allows the flight vehicle to mechanically and electrically connect to the Missile Launch System without being exposed to the environment.

Other Related Budgets: OPN LI 5231, RDTEN PE 0604756N Proj 2070

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 2: Tactical Missiles	**P-1 Line Item Number / Title:** 2292 / LCS OTH Missile

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 OTH Missile	P-5a, P-21			- / 0.000	- / 0.000	8 / 18.156	- / 0.000	18 / 38.137	18 / 38.137
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**8 / 18.156**	**- / 0.000**	**18 / 38.137**	**18 / 38.137**

*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:
Over The Horizon Missile base funding is required to support Over The Horizon Weapon System program for the Littoral Combat Ships. The program provides a long range anti-surface offensive capability to improve the ship's ability to defend against enemy surface ships.

FY 2020 funds will be used to procure 18 Over The Horizon missiles encased in a firing canister, an increase from 8 missiles in FY 2019.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2292 / LCS OTH Missile	Item Number / Title [DODIC]: 1 / LCS OTH Missile
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	8	-	18	18
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	18.156	0.000	38.137	38.137
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	18.156	0.000	38.137	38.137
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**18.156**	**0.000**	**38.137**	**38.137**
(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)*	-	-	2,270K	-	2,119K	2,119K

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) LCS OTH Missile(†)	-	-	-	-	-	-	2,152K	8	17.216	-	-	0.000	1,909K	18	34.369	1,909K	18	34.369
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*17.216*	-	-	*0.000*	-	-	*34.369*	-	-	*34.369*
Subtotal: Hardware Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***17.216***	**-**	**-**	***0.000***	**-**	**-**	***34.369***	**-**	**-**	***34.369***
Support Cost																		
2.1) Production Engineering Support - OEM (1)	-	-	-	-	-	-	-	-	0.940	-	-	0.000	-	-	2.150	-	-	2.150
2.2) Engineering Support Government and Contractor (2)	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	1.618	-	-	1.618
Subtotal: Support Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***0.940***	**-**	**-**	***0.000***	**-**	**-**	***3.768***	**-**	**-**	***3.768***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**2,270K**	**8**	**18.156**	**-**	**-**	**0.000**	**2,119K**	**18**	**38.137**	**2,119K**	**18**	**38.137**

(†) indicates the presence of a P-5a

Footnotes:

(1) Funding provides for ongoing Design Agent Services support to the US Navy in support of production line start up, missile test, missile qualification, issue resolution and in an advisory capacity. Production engineering increases from FY 2019 to FY 2020 as the missile assembly and test activities ramp up.

(2) Provides program management support, engineering and technical government and contractor support, studies, analysis and evaluation on OTH missile system.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	P-1 Line Item Number / Title: 2292 / LCS OTH Missile	Item Number / Title [DODIC]: 1 / LCS OTH Missile

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) LCS OTH Missile(†)		2019	Raytheon CO / Tucson AZ	C / FFP	NAVSEA	Dec 2018	Dec 2020	8	2,152K	Y		Feb 2017
1.1.1) LCS OTH Missile(†)	✓	2020	Raytheon CO / Tucson AZ	C / FFP	NAVSEA	Dec 2019	Dec 2021	18	1,909K	Y		Feb 2017

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2292 / LCS OTH Missile	**Item Number / Title [DODIC]:** 1 / LCS OTH Missile

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
COO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) LCS OTH Missile																															
	1	2019	NAVY	8	0	8			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
✓	1	2020	NAVY	18	0	18															A -	-	-	-	-	-	-	-	-	-	18
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2292 / LCS OTH Missile	**Item Number / Title [DODIC]:** 1 / LCS OTH Missile

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) LCS OTH Missile																															
	1	2019	NAVY	8	0	8	-	-	2	-	-	2	-	-	2	-	-	2													0
✓	1	2020	NAVY	18	0	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	4	-	-	5	-	-	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 2	**P-1 Line Item Number / Title:** 2292 / LCS OTH Missile	**Item Number / Title [DODIC]:** 1 / LCS OTH Missile

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 CO - Tucson AZ			TBD	0	0	24	24	0	0	24	24

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2307 / Evolved Sea Sparrow Missile (ESSM)

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

Line Item MDAP/MAIS Code: 197

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	950	31	45	-	60	60	125	175	300	300	Continuing	Continuing
Gross/Weapon System Cost *($ in Millions)*	1,340.626	73.513	98.384	0.000	128.059	128.059	223.305	308.770	547.985	559.056	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,340.626	73.513	98.384	0.000	128.059	128.059	223.305	308.770	547.985	559.056	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,340.626**	**73.513**	**98.384**	**0.000**	**128.059**	**128.059**	**223.305**	**308.770**	**547.985**	**559.056**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	3.665	-	-	-	-	-	-	-	-	-	3.665
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	1,411K	2,371K	2,186K	-	2,134K	2,134K	1,786K	1,764K	1,827K	1,864K	Continuing	Continuing

Description:

FY 2020 funding totals include $0.0M for Base and $128.059M for Overseas Contingency Operations (OCO); of which $128.059M and 60 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Evolved SEASPARROW Missile (ESSM) Program is an international cooperative effort among ten NATO SEASPARROW nations (Australia, Canada, Denmark, Germany, Greece, Netherlands, Norway, Spain, Turkey, and the U.S.) established to design, develop, test, produce and provide in-service support to a new and improved version of the SPARROW missile (RIM-7P) with the kinematic performance to defeat current and projected threats that possess low altitude, high velocity and maneuver characteristics beyond the engagement capabilities of the RIM-7P. ESSM consists of Blk 1 and Blk 2 missile upgrades.

ESSM Blk 1 provides crucial defense battlespace and fire power against the fast, low altitude, highly maneuverable Anti-Ship Cruise Missile (ASCM) threat. Modifications were made to both the MK 41 Vertical Launch System (VLS) to fire from a single cell with 4 ESSM (QuadPack) and the NATO SEASPARROW Surface Missile System (NSSMS), fielding ESSM Blk 1 onboard CVN 68, LHD 1, LHA 7, CG 47, and DDG 51 class ships. ESSM Blk 1 integration efforts continue to bring the capability to CVN 78 and DDG 1000. Testing scheduled for FY 2018 includes ESSM Blk 1 firings from the Self Defense Test Ship in support of DDG 1000 class integration, AEGIS B/L 9C2 live fire testing, and Combat Systems Ship Qualification Trials live fire tests aboard CVN 72 and LHD 2. The ESSM Blk 1 has been in production since 2004 and will complete with the delivery of MYP16-17 procurement in FY 2019. The production line will cease to exist in the 2019-2020 timeframe making ESSM Blk 1 unique sections (Guidance Sections and Transition Sections) unaffordable. PEO IWS 12 is working on a plan to procure depot level repair parts needed to sustain the ESSM Blk 1 inventory through its planned end of life (~2040).

ESSM Blk 2 upgrade replaces the largely obsolete guidance section with a dual mode Active/Semi-Active X-Band seeker capable of defeating future threat capabilities within the existing envelope, including; smaller signatures, increased raid sizes, and adverse environments including countermeasures. Threat types include: advanced ASCMs, Anti-Ship Ballistic Missiles, surface and asymmetrical. Two ESSM Blk 2 Controlled Test Vehicle flight tests were successfully conducted in June 2017 onboard the Self Defense Test Ship at the Point Mugu Sea Range. Successful GTV-1 in June 2018. GTV-2 completed Oct. 2018. GTV-3 scheduled to occur by Q3 FY19. The ESSM Blk 2 Milestone C decision is scheduled for Q2 FY 2019 with Initial Operational Capability for AEGIS platforms scheduled for 2020 and SSDS platforms in 2023. ESSM Blk 2 Low Rate Initial Production deliveries are expected to begin in 2020 with Full Rate Production rounds delivering to the Fleet in 2023.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2307 / Evolved Sea Sparrow Missile (ESSM)

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

Line Item MDAP/MAIS Code: 197

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Evolved Sea Sparrow Missile (ESSM)	P-5a, P-21			950 / 1,340.626	31 / 73.513	45 / 98.384	- / 0.000	60 / 128.059	60 / 128.059
P-40	**Total Gross/Weapon System Cost**				**950 / 1,340.626**	**31 / 73.513**	**45 / 98.384**	**- / 0.000**	**60 / 128.059**	**60 / 128.059**

*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:

Increase in overall FY 2020 funding due increase in the procurement of all-up-rounds from 45 in FY 2019 to 60 in FY 2020.

FY20 funding increase in MK25 Mod 1 Canisters due to an increase in the procurement quantity from 11 in FY 2019 to 15 in FY 2020.

FY20 funding increase for ESSM Blk 2 AURs due to increase in the procurement of AURs from 45 in FY2019 to 60 in FY2020.

FY20 increase in procurement support and tooling and test support from FY19 due to the procurement of additional AURs in FY20.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2307 / Evolved Sea Sparrow Missile (ESSM)	**Item Number / Title [DODIC]:** 1 / Evolved Sea Sparrow Missile (ESSM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	950	31	45	-	60	60
Gross/Weapon System Cost *($ in Millions)*	1,340.626	73.513	98.384	0.000	128.059	128.059
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,340.626	73.513	98.384	0.000	128.059	128.059
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,340.626**	**73.513**	**98.384**	**0.000**	**128.059**	**128.059**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	3.665	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	1,411K	2,371K	2,186K	-	2,134K	2,134K

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Non Recurring Cost																		
1.1.1) FUZE ECP BACKFIT	-	-	4.700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) COMPOSITE RADOME	-	-	7.871	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.3) MISSILE HARDWARE	-	-	0.600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.4) RADOM LIFE OF TYPE BUY	-	-	3.779	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.5) ROCKET MOTORS (SEASPARROW)	-	-	6.396	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*23.346*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	**-**	**-**	***23.346***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - MK25 QUADPACK CANISTERS Cost																		
Recurring Cost																		
2.1.1) MK 25 QUADPACK CANISTERS(†) (1)	343,940.12	167	57.438	480,000.00	11	5.280	489,600.00	11	5.386	-	-	0.000	499,392.00	15	7.491	499,392.00	15	7.491
2.1.3) MK 852 Mod 0 (Blk2 Shipping)	-	-	-	56,000.00	7	0.392	57,680.00	5	0.288	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*57.438*	-	-	*5.672*	-	-	*5.674*	-	-	*0.000*	-	-	*7.491*	-	-	*7.491*

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)	Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Hardware - MK25 QUADPACK CANISTERS Cost	**-**	**-**	***57.438***	**-**	**-**	***5.672***	**-**	**-**	***5.674***	**-**	**-**	***0.000***	**-**	**-**	***7.491***	**-**	**-**	***7.491***
Hardware - ESSM MISSILES Cost																		
Recurring Cost																		
3.1.1) MK 41 AEGIS ALL UP ROUND MISSILE HARDWARE(†)	876,463.10	542	475.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.1.2) MK 29 ALL UP ROUNDS MISSILE HARDWARE(†)	817,624.73	461	376.925	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.1.3) MK 57 ALLUP ROUNDS MISSILE HARDWARE(†)	1,215K	30	36.455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.1.4) MK 41 X-BAND ALL UP ROUNDS MISSILE HARDWARE	858,500.00	20	17.170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.1.5) ESSM BLOCK 2(†)	-	-	-	1,768K	31	54.821	1,742K	45	78.399	-	-	0.000	1,727K	60	103.625	1,727K	60	103.625
3.1.6) WARHEAD COMPATIBLE TELEMETER(†)	70,647.54	244	17.238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.1.7) Missile Obsolescence	-	-	-	-	-	3.131	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*922.831*	-	-	*57.952*	-	-	*78.399*	-	-	*0.000*	-	-	*103.625*	-	-	*103.625*
Subtotal: Hardware - ESSM MISSILES Cost	**-**	**-**	***922.831***	**-**	**-**	***57.952***	**-**	**-**	***78.399***	**-**	**-**	***0.000***	**-**	**-**	***103.625***	**-**	**-**	***103.625***
Hardware - SHIPPING CONTAINERS Cost																		
Recurring Cost																		
4.1.2) MK 852 Mod 0 (BLK 2) Shipping Containers(†)	-	-	-	56,000.00	10	0.560	-	-	-	-	-	-	-	-	-	-	-	-
4.1.3) ESSM SHIPPING CONTAINERS(†)	9,092.08	467	4.246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*4.246*	-	-	*0.560*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - SHIPPING CONTAINERS Cost	**-**	**-**	***4.246***	**-**	**-**	***0.560***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)	Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Support Cost																		
5.1) PROCUREMENT SUPPORT	-	-	245.551	-	-	5.291	-	-	10.202	-	-	0.000	-	-	12.963	-	-	12.963
5.2) TOOLING AND TEST SUPPORT	-	-	41.536	-	-	0.604	-	-	0.594	-	-	0.000	-	-	0.786	-	-	0.786
5.3) DIMINISHING MANUFACTURING SERVICES	-	-	2.118	-	-	2.265	-	-	2.146	-	-	0.000	-	-	2.002	-	-	2.002
5.5) PERFORMANCE CHARACTERIZATION	-	-	29.924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.6) ILS/FLEET DOCUMENTATION	-	-	2.654	-	-	0.717	-	-	0.653	-	-	0.000	-	-	0.503	-	-	0.503
5.7) COMPONENT IMPROVEMENT/ECPS	-	-	10.982	-	-	0.452	-	-	0.716	-	-	0.000	-	-	0.689	-	-	0.689
Subtotal: Support Cost	***-***	***-***	***332.765***	***-***	***-***	***9.329***	***-***	***-***	***14.311***	***-***	***-***	***0.000***	***-***	***-***	***16.943***	***-***	***-***	***16.943***
Gross/Weapon System Cost	**1,411K**	**950**	**1,340.626**	**2,371K**	**31**	**73.513**	**2,186K**	**45**	**98.384**	**-**	**-**	**0.000**	**2,134K**	**60**	**128.059**	**2,134K**	**60**	**128.059**

(†) indicates the presence of a P-5a

Footnotes:

(1) There are four (4) missiles per MK 25 Quadpack Canister.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)	Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)

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) MK 25 QUADPACK CANISTERS(†)		2016	BAE / Minneapolis, MN	SS / FFP	NAVSEA	Mar 2016	Jun 2017	3	419,200.00	Y		Feb 2014
2.1.1) MK 25 QUADPACK CANISTERS(†)		2017	BAE / Minneapolis, MN	SS / FFP	NAVSEA	May 2017	Aug 2018	19	374,064.00	Y		Feb 2015
2.1.1) MK 25 QUADPACK CANISTERS(†)		2018	BAE / Minneapolis, MN	C / FFP	NAVSEA	Mar 2019	Jun 2020	11	480,000.00	Y		Feb 2016
2.1.1) MK 25 QUADPACK CANISTERS(†)		2019	BAE / Minneapolis, MN	C / FFP	NAVSEA	Mar 2019	Jun 2020	11	489,600.00	Y		
2.1.1) MK 25 QUADPACK CANISTERS(†)	✓	2020	BAE / Minneapolis, MN	C / TBD	NAVSEA	Feb 2020	May 2021	15	499,392.00	Y		
3.1.1) MK 41 AEGIS ALL UP ROUND MISSILE HARDWARE		2015	Raytheon CO (2) / Tucson, AZ	SS / FFP	NAVSEA	Mar 2015	Mar 2017	41	1,023K	Y		Oct 2013
3.1.1) MK 41 AEGIS ALL UP ROUND MISSILE HARDWARE		2016 (3)	Raytheon CO (2) / Tucson, AZ	SS / FFP	NAVSEA	Mar 2016	Mar 2018	12	1,038K	Y		Oct 2014
3.1.1) MK 41 AEGIS ALL UP ROUND MISSILE HARDWARE		2017 (4)	Raytheon CO (2) / Tucson, AZ	SS / FFP	NAVSEA	May 2017	May 2019	49	1,201K	Y		Oct 2015
3.1.2) MK 29 ALL UP ROUNDS MISSILE HARDWARE		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Mar 2015	Mar 2017	63	898,825.40	Y	Mar 2000	Jun 2013
3.1.2) MK 29 ALL UP ROUNDS MISSILE HARDWARE		2016 (5)	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Mar 2016	Mar 2018	18	971,944.44	Y	Mar 2000	Jun 2014
3.1.3) MK 57 ALLUP ROUNDS MISSILE HARDWARE(†)		2017 (6)	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Oct 2016	Oct 2018	24	1,277K	Y		
3.1.5) ESSM BLOCK 2(†)		2018	Raytheon CO / Tucson, AZ	SS / FPIF	NAVSEA	Apr 2019	Oct 2020	31	1,768K	Y		Oct 2017
3.1.5) ESSM BLOCK 2(†)		2019	Raytheon CO / Tucson, AZ	SS / FPIF	NAVSEA	Apr 2019	Apr 2021	45	1,742K	Y		Oct 2018
3.1.5) ESSM BLOCK 2(†)	✓	2020	Raytheon CO / Tucson, AZ	SS / FPIF	NAVSEA	Oct 2019	Oct 2021	60	1,727K	Y		Oct 2019
3.1.6) WARHEAD COMPATIBLE TELEMETER(†)		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Mar 2015	Sep 2017	41	74,829.27	Y	Mar 2000	Jun 2014
3.1.6) WARHEAD COMPATIBLE TELEMETER(†)		2016 (7)	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Mar 2016	Sep 2018	6	76,333.33	Y	Mar 2000	Jun 2015
3.1.6) WARHEAD COMPATIBLE TELEMETER(†)		2017 (8)	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	May 2017	Nov 2019	28	76,320.00	Y	Mar 2000	Jun 2016
4.1.2) MK 852 Mod 0 (BLK 2) Shipping Containers(†)		2018	Raytheon CO / Tucson AZ	SS / FPIF	NAVSEA	Sep 2018	Sep 2019	10	56,000.00	Y		
4.1.3) ESSM SHIPPING CONTAINERS(†)		2015	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Mar 2015	May 2017	63	6,031.75	Y	Mar 2000	Oct 2014

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)	Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.1.3) ESSM SHIPPING CONTAINERS(†)		2016 (9)	Raytheon CO / Tucson, AZ	SS / FFP	NAVSEA	Dec 2016	Feb 2019	18	6,166.67	Y	Mar 2000	Oct 2015

(†) indicates the presence of a P-21

Footnotes:

(2) ESSM is a cooperative effort among ten NATO SEASPARROW nations which contributes to MSR.

(3) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

(4) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

(5) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

(6) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

(7) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

(8) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

(9) Included on the FY 2016 - FY 2017 Multi-Year Procurement contract.

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3

P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)

Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
										Calendar Year 2015												Calendar Year 2016									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	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	
2.1.1) MK 25 QUADPACK CANISTERS (1)																															
Prior Years Deliveries: 145																															
	1	2016	NAVY	3	0	3																		A -	-	-	-	-	-	-	3
	1	2017	NAVY	19	0	19																									19
	1	2018	NAVY	11	0	11																									11
	1	2019	NAVY	11	0	11																									11
✓	1	2020	NAVY	15	0	15																									15
3.1.3) MK 57 ALLUP ROUNDS MISSILE HARDWARE																															
Prior Years Deliveries: 6																															
	2	2017	NAVY	24	0	24																									24
3.1.5) ESSM BLOCK 2																															
	3	2018	NAVY	31	0	31																									31
	3	2019	NAVY	45	0	45																									45
✓	3	2020	NAVY	60	0	60																									60
3.1.6) WARHEAD COMPATIBLE TELEMETER																															
Prior Years Deliveries: 169																															
	4	2015	NAVY	41	0	41						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
	4	2016	NAVY	6	0	6																		A -	-	-	-	-	-	-	6
	4	2017	NAVY	28	0	28																									28
4.1.2) MK 852 Mod 0 (BLK 2) Shipping Containers																															
	5	2018	NAVY	10	0	10																									10
4.1.3) ESSM SHIPPING CONTAINERS																															
Prior Years Deliveries: 386																															
	6	2015	NAVY	63	0	63						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63
	6	2016	NAVY	18	0	18																									18
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3 | **P-1 Line Item Number / Title:** 2307 / Evolved Sea Sparrow Missile (ESSM) | **Item Number / Title [DODIC]:** 1 / Evolved Sea Sparrow Missile (ESSM)

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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	
2.1.1) MK 25 QUADPACK CANISTERS (1)																															
Prior Years Deliveries: 145																															
	1	2016	NAVY	3	0	3	-	-	-	-	-	-	-	-	3																0
	1	2017	NAVY	19	0	19								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	17
	1	2018	NAVY	11	0	11																									11
	1	2019	NAVY	11	0	11																									11
✓	1	2020	NAVY	15	0	15																									15
3.1.3) MK 57 ALLUP ROUNDS MISSILE HARDWARE																															
Prior Years Deliveries: 6																															
	2	2017	NAVY	24	0	24	A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
3.1.5) ESSM BLOCK 2																															
	3	2018	NAVY	31	0	31																									31
	3	2019	NAVY	45	0	45																									45
✓	3	2020	NAVY	60	0	60																									60
3.1.6) WARHEAD COMPATIBLE TELEMETER																															
Prior Years Deliveries: 169																															
	4	2015	NAVY	41	0	41	-	-	-	-	-	-	-	-	-	-	-	5	6	6	8	6	5	5							0
	4	2016	NAVY	6	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4
	4	2017	NAVY	28	0	28								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
4.1.2) MK 852 Mod 0 (BLK 2) Shipping Containers																															
	5	2018	NAVY	10	0	10																								A -	10
4.1.3) ESSM SHIPPING CONTAINERS																															
Prior Years Deliveries: 386																															
	6	2015	NAVY	63	0	63	-	-	-	-	-	-	-	15	21	8	10	9													0
	6	2016	NAVY	18	0	18			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3

P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)

Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
2.1.1) MK 25 QUADPACK CANISTERS [1]																															
Prior Years Deliveries: 145																															
	1	2016	NAVY	3	3	0																									0
	1	2017	NAVY	19	2	17	2	2	2	2	2	3	2	2																	0
	1	2018	NAVY	11	0	11						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	3		7
	1	2019	NAVY	11	0	11						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1		7
✓	1	2020	NAVY	15	0	15																	A -	-	-	-	-	-	-		15
3.1.3) MK 57 ALLUP ROUNDS MISSILE HARDWARE																															
Prior Years Deliveries: 6																															
	2	2017	NAVY	24	0	24	3	3	3	3	3	3	3	3																	0
3.1.5) ESSM BLOCK 2																															
	3	2018	NAVY	31	0	31							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		31
	3	2019	NAVY	45	0	45							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		45
✓	3	2020	NAVY	60	0	60													A -	-	-	-	-	-	-	-	-	-	-		60
3.1.6) WARHEAD COMPATIBLE TELEMETER																															
Prior Years Deliveries: 169																															
	4	2015	NAVY	41	41	0																									0
	4	2016	NAVY	6	2	4	2	2																							0
	4	2017	NAVY	28	0	28	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	7	7								0
4.1.2) MK 852 Mod 0 (BLK 2) Shipping Containers																															
	5	2018	NAVY	10	0	10	-	-	-	-	-	-	-	-	-	-	-	5	5												0
4.1.3) ESSM SHIPPING CONTAINERS																															
Prior Years Deliveries: 386																															
	6	2015	NAVY	63	63	0																									0
	6	2016	NAVY	18	0	18	-	-	-	-	4	4	4	4	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3

P-1 Line Item Number / Title: 2307 / Evolved Sea Sparrow Missile (ESSM)

Item Number / Title [DODIC]: 1 / Evolved Sea Sparrow Missile (ESSM)

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	
2.1.1) MK 25 QUADPACK CANISTERS (1)																															
Prior Years Deliveries: 145																															
	1	2016	NAVY	3	3	0																									0
	1	2017	NAVY	19	19	0																									0
	1	2018	NAVY	11	4	7	3	3	1																						0
	1	2019	NAVY	11	4	7	1	1	1	1	1	1	1																		0
✓	1	2020	NAVY	15	0	15	-	-	-	-	-	-	-	2	2	1	-	2	2	2	2	-	2								0
3.1.3) MK 57 ALLUP ROUNDS MISSILE HARDWARE																															
Prior Years Deliveries: 6																															
	2	2017	NAVY	24	24	0																									0
3.1.5) ESSM BLOCK 2																															
	3	2018	NAVY	31	0	31	4	8	4	4	4	4	3																		0
	3	2019	NAVY	45	0	45	-	-	-	-	-	-	6	6	6	6	6	6	6	3											0
✓	3	2020	NAVY	60	0	60	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	5	5	5	5	5	5	5	5	2	0
3.1.6) WARHEAD COMPATIBLE TELEMETER																															
Prior Years Deliveries: 169																															
	4	2015	NAVY	41	41	0																									0
	4	2016	NAVY	6	6	0																									0
	4	2017	NAVY	28	28	0																									0
4.1.2) MK 852 Mod 0 (BLK 2) Shipping Containers																															
	5	2018	NAVY	10	10	0																									0
4.1.3) ESSM SHIPPING CONTAINERS																															
Prior Years Deliveries: 386																															
	6	2015	NAVY	63	63	0																									0
	6	2016	NAVY	18	18	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2307 / Evolved Sea Sparrow Missile (ESSM)	**Item Number / Title [DODIC]:** 1 / Evolved Sea Sparrow Missile (ESSM)

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	BAE - Minneapolis, MN	45	82	120	0	5	15	20	5	5	15	20
2	Raytheon CO - Tucson, AZ	180	300	420	8	2	24	26	2	2	24	26
3	Raytheon CO - Tucson, AZ	180	300	420	8	2	24	26	2	2	24	26
4	Raytheon CO - Tucson, AZ	180	300	420	0	0	30	30	0	0	30	30
5	Raytheon CO - Tucson AZ			TBD	0	0	0	0	0	0	0	0
6	Raytheon CO - Tucson, AZ			TBD	0	0	26	26	0	0	26	26

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2326 / Harpoon Mods

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	15.300	26.840	0.000	25.447	25.447	29.379	8.229	7.523	7.600	-	120.318
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	15.300	26.840	0.000	25.447	25.447	29.379	8.229	7.523	7.600	-	120.318
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**15.300**	**26.840**	**0.000**	**25.447**	**25.447**	**29.379**	**8.229**	**7.523**	**7.600**	**-**	**120.318**
(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:

FY 2020 funding totals include $0.0M for Base and $25.447M for Overseas Contingency Operations (OCO); of which $25.447M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Harpoon Block II+ (HII+) retrofit kit procurement provides the Department of Navy (DoN) with an enhanced tactical navigation and targeting selectivity capabilities over the legacy Harpoon Block IC (HIC) inventory. Harpoon Block II+ is a Network Enabled, Air-Launched, Anti-ship Cruise missile with the ability to receive in-flight targeting updates, improving target selectivity and the engagement of moving maritime targets. Additionally, the system utilizes the Global Positioning System to provide in-flight updates coupled with an active radar seeker for accurate targeting. The program procurement budget keeps pace with evolving enemy threats by providing a network enabled, anti-ship cruise missile capability, which compliments the attributes of associated launch platforms. The survivability of the HII+ is increased over the HIC due to the upgrade retrofit kit, increasing the lethality of the weapon system. The DoN's planned procurement modifies legacy HIC with the retrofit kits, to include procurement of Captive Air Training Missiles (CATMs), increasing the Anti-Surface Warfare capabilities of Fleet Forces. The acquisition strategy includes the harvesting and software reprogramming of data links from existing weapons inventories to support the HII+ modification/production effort.

The Encapsulated (ENCAP) Harpoon Block IC (HIC) missiles provides Navy Los Angeles-class nuclear attack submarines (SSN) a sub-launched, all-weather, long-range Anti-Surface Warfare (ASuW) missile to attack enemy warships at stand-off ranges, to include Surface and Amphibious Action Groups. The ENCAP Reconstitution Program will refurbish and recertify 60 existing ENCAP HIC all-up rounds from deep storage to an "as-new" war-ready material condition (ENCAP Harpoons were placed in deep storage in 1996). The controlled storage conditions achieved by the missile capsule have preserved the material condition of the weapon system, allowing for relatively quick recertification and reissue. Due to the ease and speed of missile recertifications the ENCAP HIC Reconstitution Program will fill a critical, time sensitive ASuW capability gap and meet Speed to the Fleet requirements.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2326 / Harpoon Mods

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-3a	1 / Harpoon Block II+ (Added Capability)				- / 0.000	- / 15.300	- / 26.840	- / 0.000	- / 25.447	- / 25.447
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 15.300**	**- / 26.840**	**- / 0.000**	**- / 25.447**	**- / 25.447**

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-3a	1 / Harpoon Block II+ (Added Capability)				- / 29.379	- / 8.229	- / 7.523	- / 7.600	- / 0.000	- / 120.318
P-40	**Total Gross/Weapon System Cost**				**- / 29.379**	**- / 8.229**	**- / 7.523**	**- / 7.600**	**- / -**	**- / 120.318**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:

FY 2020 provides funding to procure 70 Harpoon Block II+ kits and 9 Captive Air Test Missiles (CATMs). HII+ CATMs will provide fleet operators with loading, handling and flight employment training. The Harpoon Block II+ retrofit kit program to the Harpoon Block 1C inventory supports DoD strategic goals by improving the capabilities and lethality of existing weapons systems at minimal cost. Furthermore, the Harpoon Block II+ will enhance the Anti-Surface Warfare capabilities of Fleet Forces, by providing increased reliability, target selectivity, and improved survivability over current systems.FY 2020 budget contains $0.8 million to fund ENCAP Harpoon Reconstitution Program. Active radar seeker procurements planned to begin in FY 2021 have been removed.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2326 / Harpoon Mods	**Modification Number / Title:** 1 / Harpoon Block II+
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	15.300	26.840	0.000	25.447	25.447	29.379	8.229	7.523	7.600	0.000	120.318
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	15.300	26.840	0.000	25.447	25.447	29.379	8.229	7.523	7.600	0.000	120.318
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**15.300**	**26.840**	**0.000**	**25.447**	**25.447**	**29.379**	**8.229**	**7.523**	**7.600**	**0.000**	**120.318**
(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 Harpoon Block II+ (HII+) retrofit kit procurement provides the Department of Navy (DoN) with an enhanced tactical navigation and targeting selectivity capabilities over the legacy Harpoon Block IC (HIC) inventory. Harpoon Block II+ is a Network Enabled, Air-Launched, Anti-ship Cruise missile with the ability to receive in-flight targeting updates, improving target selectivity and the engagement of moving maritime targets. Additionally, the system utilizes the Global Positioning System to provide in-flight updates coupled with an active radar seeker for accurate targeting. The program procurement budget keeps pace with evolving enemy threats by providing a network enabled, anti-ship cruise missile capability, which compliments the attributes of associated launch platforms. The survivability of the HII+ is increased over the HIC due to the upgrade retrofit kit, increasing the lethality of the weapon system. The DoN's planned procurement modifies legacy HIC with the retrofit kits, to include procurement of Captive Air Training Missiles (CATMs), increasing the Anti-Surface Warfare capabilities of Fleet Forces. The acquisition strategy includes the harvesting and software reprogramming of data links from existing weapons inventories to support the HII+ modification/production effort.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2326 / Harpoon Mods	**Modification Number / Title:** 1 / Harpoon Block II+
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: RGM-84M and AGM-84M	**Modification Type:** Added Capability	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: Harpoon Block II+												
B Kits												
Recurring												
1.1.1) Harpoon Block II+ Installation Kits - NonOrganic	- / -	53 / 14.254	79 / 15.991	- / 0.000	70 / 16.315	70 / 16.315	48 / 17.910	- / -	- / -	- / -	- / -	250 / 64.470
1.1.2) Captive Air Test Missiles - NonOrganic (1)	- / -	- / -	2 / 0.884	- / 0.000	9 / 4.050	9 / 4.050	9 / 4.122	- / -	- / -	- / -	- / -	20 / 9.056
Subtotal: Recurring	*- / 0.000*	*- / 14.254*	*- / 16.875*	*- / 0.000*	*- / 20.365*	*- / 20.365*	*- / 22.032*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 73.526*
Non-Recurring												
1.2.1) Non-Recurring - Organic (2)	- / -	- / -	- / 2.482	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.482
Subtotal: Non-Recurring	*- / 0.000*	*- / -*	*- / 2.482*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 2.482*
Subtotal: Harpoon Block II+	*- / -*	*53 / 14.254*	*81 / 19.357*	*- / 0.000*	*79 / 20.365*	*79 / 20.365*	*57 / 22.032*	*- / -*	*- / -*	*- / -*	*- / -*	*270 / 76.008*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 14.254*	*- / 19.357*	*- / 0.000*	*- / 20.365*	*- / 20.365*	*- / 22.032*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 76.008*
Support *(All Modification Items)*												
2.1) ENCAP Production Engineering Support (PES)	- / -	- / -	- / -	- / 0.000	- / 0.406	- / 0.406	- / 1.299	- / 2.151	- / 1.798	- / 1.798	- / -	- / 7.452
2.2) ENCAP Test Support	- / -	- / -	- / -	- / 0.000	- / 0.406	- / 0.406	- / 1.299	- / 2.152	- / 1.798	- / 1.798	- / -	- / 7.453
2.3) Harpoon Block II+ Containers	- / -	- / -	- / 1.030	- / 0.000	- / 1.061	- / 1.061	- / 1.093	- / -	- / -	- / -	- / -	- / 3.184
2.4) Harpoon Block II+ Data Link Reprogramming (3)	- / -	- / -	- / 1.176	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.176
2.5) Harpoon Block II+ Data Link Harvesting (4)	- / -	- / -	- / 2.128	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.128
2.6) Harpoon Block II+ Mission Planning	- / -	- / -	- / 0.900	- / 0.000	- / 0.916	- / 0.916	- / 0.932	- / 1.281	- / 1.290	- / 1.299	- / -	- / 6.618
2.7) Harpoon Block II+ Production Engineering Support (PES)	- / -	- / 0.696	- / 1.134	- / 0.000	- / 1.158	- / 1.158	- / 1.179	- / 1.200	- / 1.222	- / 1.244	- / -	- / 7.833
2.8) Harpoon Block II+ Training	- / -	- / 0.350	- / 1.115	- / 0.000	- / 1.135	- / 1.135	- / 1.545	- / 1.445	- / 1.415	- / 1.461	- / -	- / 8.466
Subtotal: Support	*- / 0.000*	*- / 1.046*	*- / 7.483*	*- / 0.000*	*- / 5.082*	*- / 5.082*	*- / 7.347*	*- / 8.229*	*- / 7.523*	*- / 7.600*	*- / 0.000*	*- / 44.310*
Installation												
Modification Item 1 of 1: Harpoon Block II+	- / 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)	**0.000**	**15.300**	**26.840**	**0.000**	**25.447**	**25.447**	**29.379**	**8.229**	**7.523**	**7.600**	**0.000**	**120.318**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2326 / Harpoon Mods	**Modification Number / Title:** 1 / Harpoon Block II+
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: Harpoon Block II+

Manufacturer Information

Manufacturer Name: Boeing	Manufacturer Location: St. Louis, Missouri
Administrative Leadtime *(in Months)*: 10	Production Leadtime *(in Months)*: 19

Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Sep 2018	Jan 2019	Mar 2020	Mar 2021			
Delivery Dates	Mar 2020	Aug 2021	Oct 2022	Oct 2023			

Installation Information

Method of Implementation: [none specified]:: Installation Name: Harpoon Block II+ Installation Kits

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	- / -	- / -	0 / 0.000	53 / 0.000	53 / 0.000	- / -	- / -	- / -	- / -	0 / 0.000	53 / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	40 / 0.000	39 / 0.000	- / -	- / -	0 / 0.000	79 / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	70 / 0.000	- / -	0 / 0.000	70 / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	48 / 0.000	0 / 0.000	48 / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	0 / 0.000	53 / 0.000	53 / 0.000	40 / 0.000	39 / 0.000	70 / 0.000	48 / 0.000	0 / 0.000	250 / -

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	27	26	-	-	-	-	40	39	-	-	-	35	35	-	-	24	24	-	-	-	250
Out	-	-	-	-	-	-	-	-	-	-	-	27	26	-	-	-	-	40	39	-	-	-	35	35	-	-	24	24	-	-	250

Method of Implementation: [none specified]:: Installation Name: Captive Air Test Missiles

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

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2326 / Harpoon Mods	**Modification Number / Title:** 1 / Harpoon Block II+
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: Harpoon Block II+

Installation Information

Method of Implementation: [none specified]:: Installation Name: Captive Air Test Missiles

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.000	- / -	- / -	- / -	0 / 0.000	2 / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.000	- / -	- / -	0 / 0.000	9 / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	9 / 0.000	- / -	0 / 0.000	9 / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	- / -	- / -	- / -	2 / 0.000	9 / 0.000	9 / 0.000	- / -	0 / 0.000	20 / -

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	5	4	-	-	5	4	-	-	-	-	-	-	20
Out	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	5	4	-	-	5	4	-	-	-	-	-	20

Footnotes:

(1) FY20 quantities increase associated with fleet training requirements.

(2) Funds required for non-recurring engineering to complete production testing and qualification.

(3) The acquisition strategy includes software reprogramming of data links from existing weapons inventories to support the Harpoon Block II+ (HII+) modification/production effort.

(4) The acquisition strategy includes the harvesting of data links from existing weapons inventories to support the Harpoon Block II+ (HII+) modification/production effort.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2327 / HARM Mods

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0205601N

Line Item MDAP/MAIS Code: 368

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	831.435	183.368	179.885	0.000	183.740	183.740	218.073	205.804	209.933	214.125	1,432.469	3,658.832
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	831.435	183.368	179.885	0.000	183.740	183.740	218.073	205.804	209.933	214.125	1,432.469	3,658.832
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**831.435**	**183.368**	**179.885**	**0.000**	**183.740**	**183.740**	**218.073**	**205.804**	**209.933**	**214.125**	**1,432.469**	**3,658.832**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	0.000	3.665	3.665	4.487	4.576	4.668	0.794	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $183.74M for Overseas Contingency Operations (OCO); of which $183.74M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

AGM-88E Advanced Anti-Radiation Guided Missile (AARGM) is an ACAT-1C acquisition program to upgrade the Legacy AGM-88 High Speed Anti-Radiation Missile (HARM) with multi-mode guidance and enhanced targeting capability. The AARGM program will integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning system (GPS)/Inertial Navigation System) on the HARM AGM-88 missile. The AARGM weapon system capabilities include: active MMW terminal guidance, counter shutdown, expanded threat coverage, enhanced ARH receiver, Weapon Impact Assessment (WIA) transmission prior to detonation, GPS point-to-point weapon navigation, and weapon employment with impact avoidance zone/missile impact zones. AARGM AGM-88E production units possess the capability to engage targets in the Destruction of Enemy Air Defenses (DEAD) mission area and will be able to destroy non-traditional and Overseas Contingency Operation (OCO) targets. AARGM is a cooperative program between the Department of Defense of the United States of America and the Ministry of Defense of the Republic of Italy.

The Advanced Anti-Radiation Guided Missile Extended Range (AARGM ER) upgrade includes hardware and software improvements to AARGM's operational capabilities, including extended range, survivability, and effectiveness against complex, new and emerging threats.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2327 / HARM Mods

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0205601N

Line Item MDAP/MAIS Code: 368

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-3a	1 / HARM Mods (AARGM) (Added Capability)				- / 831.435	- / 183.368	- / 179.885	- / 0.000	- / 183.740	- / 183.740
P-3a	2 / HARM Mods (AARGM ER) (Added Capability)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 831.435**	**- / 183.368**	**- / 179.885**	**- / 0.000**	**- / 183.740**	**- / 183.740**

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-3a	1 / HARM Mods (AARGM) (Added Capability)				- / 188.073	- / 175.142	- / 178.658	- / 0.000	- / 0.000	- / 1,920.301
P-3a	2 / HARM Mods (AARGM ER) (Added Capability)				- / 30.000	- / 30.662	- / 31.275	- / 214.125	- / 1,432.469	- / 1,738.531
P-40	**Total Gross/Weapon System Cost**				**- / 218.073**	**- / 205.804**	**- / 209.933**	**- / 214.125**	**- / 1,432.469**	**- / 3,658.832**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 funding supports the procurement of AARGM modification kits for All Up Rounds (AURs), Captive Air Training Missiles (CATMs), container modifications, telemetry sections, support equipment, engineering and logistics support, Engineering Change Orders (ECO), contractor Other Production Support (OPS), Special Tooling/Special Test Equipment (ST/STE) and Diminishing Manufacturing Sources (DMS).

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2327 / HARM Mods	**Modification Number / Title:** 1 / HARM Mods (AARGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	831.435	183.368	179.885	0.000	183.740	183.740	188.073	175.142	178.658	0.000	0.000	1,920.301
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	831.435	183.368	179.885	0.000	183.740	183.740	188.073	175.142	178.658	0.000	0.000	1,920.301
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**831.435**	**183.368**	**179.885**	**0.000**	**183.740**	**183.740**	**188.073**	**175.142**	**178.658**	**0.000**	**0.000**	**1,920.301**
(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:
AARGM is an ACAT-1C acquisition program to upgrade the Legacy AGM-88 HARM missile with multi-mode/multi-spectral guidance and enhanced targeting. Full-Rate Production (FRP) decision was granted on 4 September 2012. FRP Lot 7 contract funded with FY 2018 was awarded 3Q FY 2018 with deliveries commencing in April 2020.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2327 / HARM Mods	**Modification Number / Title:** 1 / HARM Mods (AARGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: AGM-88E	**Modification Type:** Added Capability	**Related RDT&E PEs:** 0205601N

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: HARM Mods (AARGM)												
A Kits												
Recurring												
1.1.1) ES010 AUR Installation Kits - Organic (1)	807 / 536.484	244 / 140.108	256 / 144.282	- / 0.000	245 / 140.326	245 / 140.326	245 / 141.904	249 / 145.246	254 / 149.538	- / -	- / -	2,300 / 1,397.888
1.1.2) ES990 Training Equipment (CATMs) - Organic (2)	108 / 75.497	8 / 4.594	5 / 2.818	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	121 / 82.909
Subtotal: Recurring	*- / 611.981*	*- / 144.702*	*- / 147.100*	*- / 0.000*	*- / 140.326*	*- / 140.326*	*- / 141.904*	*- / 145.246*	*- / 149.538*	*- / -*	*- / 0.000*	*- / 1,480.797*
Subtotal: HARM Mods (AARGM)	*915 / 611.981*	*252 / 144.702*	*261 / 147.100*	*- / 0.000*	*245 / 140.326*	*245 / 140.326*	*245 / 141.904*	*249 / 145.246*	*254 / 149.538*	*- / -*	*- / -*	*2,421 / 1,480.797*
Subtotal: Procurement, All Modification Items	*- / 611.981*	*- / 144.702*	*- / 147.100*	*- / 0.000*	*- / 140.326*	*- / 140.326*	*- / 141.904*	*- / 145.246*	*- / 149.538*	*- / -*	*- / 0.000*	*- / 1,480.797*
Support *(All Modification Items)*												
2.1) ES960 Containers	460 / 6.786	126 / 1.129	130 / 1.146	- / 0.000	123 / 1.074	123 / 1.074	123 / 1.070	125 / 1.084	127 / 1.100	- / -	- / -	1,214 / 13.389
2.2) Telemetry Sections (3)	3 / 1.500	36 / 11.700	23 / 7.500	- / 0.000	53 / 17.263	53 / 17.263	55 / 17.930	14 / 4.564	16 / 5.216	- / -	- / -	200 / 65.673
2.3) ES970 Support Equipment (4)	- / 9.618	- / 1.181	- / 0.786	- / 0.000	- / 0.792	- / 0.792	- / 0.807	- / 0.833	- / 0.697	- / -	- / -	- / 14.714
2.4) ES700 Engineering Change Orders (5)	- / 32.811	- / 2.400	- / 3.383	- / 0.000	- / 3.944	- / 3.944	- / 5.616	- / 2.476	- / 2.219	- / -	- / -	- / 52.849
2.5) ES930 Production Engineering Support (6)	- / 49.928	- / 6.918	- / 5.838	- / 0.000	- / 5.942	- / 5.942	- / 6.061	- / 6.182	- / 6.306	- / -	- / -	- / 87.175
2.6) Non-Recurring Engineering	- / 4.111	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 4.111
2.7) ES970 Integrated Logistics Support (7)	- / 21.683	- / 1.393	- / 1.419	- / 0.000	- / 1.447	- / 1.447	- / 1.476	- / 1.505	- / 1.351	- / -	- / -	- / 30.274
2.8) ES950 Other Production Support (8)	- / 59.165	- / 7.159	- / 7.582	- / 0.000	- / 7.734	- / 7.734	- / 7.889	- / 8.047	- / 8.207	- / -	- / -	- / 105.783
2.9) ES400 ST/STE for Production Facilitization (9)	- / 26.101	- / 5.020	- / 3.331	- / 0.000	- / 3.384	- / 3.384	- / 3.451	- / 3.625	- / 3.698	- / -	- / -	- / 48.610
2.10) ES260 Diminishing Manufacturing Sources (DMS) (10)	- / 7.751	- / 1.766	- / 1.800	- / 0.000	- / 1.834	- / 1.834	- / 1.869	- / 1.580	- / 0.326	- / -	- / -	- / 16.926
Subtotal: Support	*- / 219.454*	*- / 38.666*	*- / 32.785*	*- / 0.000*	*- / 43.414*	*- / 43.414*	*- / 46.169*	*- / 29.896*	*- / 29.120*	*- / -*	*- / 0.000*	*- / 439.504*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**831.435**	**183.368**	**179.885**	**0.000**	**183.740**	**183.740**	**188.073**	**175.142**	**178.658**	**0.000**	**0.000**	**1,920.301**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2327 / HARM Mods	**Modification Number / Title:** 1 / HARM Mods (AARGM)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Modification Item 1 of 1: HARM Mods (AARGM)		

Manufacturer Information

Manufacturer Name: Northrup Grumman Corporation Innovation Systems [11]	Manufacturer Location: Northridge, CA
Administrative Leadtime *(in Months)*: 8	Production Leadtime *(in Months)*: 23

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

Footnotes:

(1) Cost Element 1.1.1 AUR Installation kits budget reflects requirements and updates based on contract actuals, adjusting quantity and unit costs.

(2) Cost Element 1.1.2 CATMs budget reflects requirements and updates based on contract actuals, adjusting quantity and unit costs. CATMs are based on the analysis of operational fleet training requirements.

(3) Cost Element 2.2 Telemetry Sections provide the data required to assess flight testing and provide the flight termination capability required for range safety during live firings on United States Navy ranges. Funding is required to meet Noncombat Expenditure Allocation (NCEA) requirements. Increase in Telemetry Sections from FY19 to FY20 is to ramp up in quantities in order to meet the NCEA requirements.

(4) Cost Element 2.3 Support equipment includes Common Munitions Bit/Reprogramming Equipment (CMBRE), unique support equipment, and radome covers.

(5) Cost Element 2.4 Engineering change orders (ECO) are used for the Cost Improvement Initiatives (CII), safety, and engineering change proposals (ECPs) to add capability, reduce missile cost and improve production. Increase in ECO from FY19 to FY20 is to account for four configuration changes to the AARGM missile in order to increase capability on the weapon to be able to prosecute complex emitters.

(6) Cost Element 2.5 Production Engineering Support (PES) reflect field activity requirements as stated in the approved FRP decision.

(7) Cost Element 2.7 Integrated Logistics Support (ILS) budget line supports costs of maintenance, supply support, support equipment management, computer resources support, training and training support, ILS program management, and Packaging, Handling, Storage and Transportation (PHS&T).

(8) Cost Element 2.8 Other Production Support (OPS) includes prime contractor production support and recurring fixed costs that are required per lot. Funding profile for OPS reflect requirements and updated based on contract actuals.

(9) Cost Element 2.9 Special Tooling/Special Test Equipment (ST/STE) for production facilitization includes rate tooling to meet production ramp each year as well as planning, building, installing, maintaining, calibrating, repairing and replacing of ST/STE and production equipment.

(10) Cost Element 2.10 Diminishing Manufacturing Sources (DMS) added to comply with Congressional direction, H.R. 933. DMS funding includes life-of-type buys due to obsolescence parts and components and other obsolescence issue resolutions. Funding reflects the programs projected obsolescence issues and can vary from year to year.

(11) Orbital ATK renamed Northrop Grumman Corporation Innovation Systems.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2327 / HARM Mods	**Modification Number / Title:** 2 / HARM Mods (AARGM ER)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	0.000	0.000	0.000	0.000	30.000	30.662	31.275	214.125	1,432.469	1,738.531
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	0.000	0.000	0.000	30.000	30.662	31.275	214.125	1,432.469	1,738.531
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**30.000**	**30.662**	**31.275**	**214.125**	**1,432.469**	**1,738.531**
(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 Advanced Anti-Radiation Guided Missile Extended Range (AARGM ER) upgrade includes hardware and software improvements to AARGM's operational capabilities, including extended range, survivability, and effectiveness against complex, new and emerging threats. Planned Initial Operating Capability (IOC) is 4Q FY 2023. The AARGM ER Low Rate Initial Production 1 is expected to award in 3Q FY 2021 with expected deliveries beginning in 2Q FY 2023.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2327 / HARM Mods	**Modification Number / Title:** 2 / HARM Mods (AARGM ER)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: AGM-88E	**Modification Type:** Added Capability	**Related RDT&E PEs:** 0205601N

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: HARM Mods (AARGM ER)												
A Kits												
Recurring												
1.1.1) AUR Installation Kits - Organic [12]	- / -	- / -	- / -	- / -	- / -	- / -	16 / 9.100	16 / 9.282	16 / 9.468	291 / 175.637	1,661 / 1,072.321	2,000 / 1,275.808
Subtotal: Recurring	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 9.100*	*- / 9.282*	*- / 9.468*	*- / 175.637*	*- / 1,072.321*	*- / 1,275.808*
Subtotal: HARM Mods (AARGM ER)	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*16 / 9.100*	*16 / 9.282*	*16 / 9.468*	*291 / 175.637*	*1,661 / 1,072.321*	*2,000 / 1,275.808*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 9.100*	*- / 9.282*	*- / 9.468*	*- / 175.637*	*- / 1,072.321*	*- / 1,275.808*
Support *(All Modification Items)*												
2.1) Containers	- / -	- / -	- / -	- / -	- / -	- / -	- / 0.334	- / 0.341	- / 0.348	- / 6.459	- / 39.435	- / 46.917
2.2) Support Equipment [13]	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.695	- / 1.729	- / 1.764	- / 12.095	- / 173.844	- / 191.127
2.3) Engineering Change Orders [14]	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.408	- / 1.498	- / 1.528	- / 1.238	- / 10.028	- / 15.700
2.4) Production Engineering Support [15]	- / -	- / -	- / -	- / -	- / -	- / -	- / 7.800	- / 7.956	- / 8.101	- / 8.263	- / 53.167	- / 85.287
2.5) Non-Recurring Engineering	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.814	- / 2.870	- / 2.927	- / 2.986	- / 19.210	- / 30.807
2.6) Integrated Logistics Support [16]	- / -	- / -	- / -	- / -	- / -	- / -	- / 1.341	- / 1.368	- / 1.394	- / 1.422	- / 9.149	- / 14.674
2.7) Other Production Support [17]	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.560	- / 2.611	- / 2.678	- / 2.897	- / 18.647	- / 29.393
2.8) ST/STE for Production Facilitization [18]	- / -	- / -	- / -	- / -	- / -	- / -	- / 2.948	- / 3.007	- / 3.067	- / 3.128	- / 20.129	- / 32.279
2.9) Diminishing Manufacturing Sources (DMS) [19]	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 16.539	- / 16.539
Subtotal: Support	*- / 0.000*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 20.900*	*- / 21.380*	*- / 21.807*	*- / 38.488*	*- / 360.148*	*- / 462.723*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**30.000**	**30.662**	**31.275**	**214.125**	**1,432.469**	**1,738.531**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2327 / HARM Mods	**Modification Number / Title:** 2 / HARM Mods (AARGM ER)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: HARM Mods (AARGM ER)

Manufacturer Information

Manufacturer Name: TBD	Manufacturer Location: TBD
Administrative Leadtime *(in Months)*: 8	Production Leadtime *(in Months)*: 27

Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates				May 2021	May 2022	May 2023	May 2024
Delivery Dates				Aug 2023	Aug 2024	Aug 2025	Aug 2026

Footnotes:

(12) Cost Element 1.1.1 AGM-88E ER AUR Installation Kits include a modification kit that will improve AARGM's operational capabilities, including extended range, survivability and effectiveness against complex, new, and emerging threats. Unit cost based on pre-Development & Integration estimate. Total inventory objective updated from 200 units to 2,000 units.

(13) Cost Element 2.2 Support equipment includes Common Munitions Bit/Reprogramming Equipment (CMBRE), unique support equipment and radome covers.

(14) Cost Element 2.3 Engineering change orders (ECO) are used for the Continuous Improvement Initiatives (CII), safety, and engineering changes (ECPs) to reduce missile cost and improve producibility.

(15) Cost Element 2.4 Production Engineering Support (PES) reflect field activity requirements.

(16) Cost Element 2.6 Integrated Logistics Support (ILS) budget line supports costs of maintenance, supply support, support equipment management, computer resources support, training and training support, ILS program management, and Packaging, Handling, Storage and Transportation (PHS&T).

(17) Cost Element 2.7 Other Production Support (OPS) includes prime contractor production support and recurring fixed costs that are required per lot.

(18) Cost Element 2.8 Special Tooling/Special Test Equipment (ST/STE) funding is for production facilitization includes rate tooling to meet production ramp each year as well as planning, building, installing, maintaining, calibrating, repairing and replacing of ST/STE and production equipment.

(19) Cost Element 2.9 Diminishing Manufacturing Sources funding includes life-of-type buys due to obsolescence parts and components and other obsolescence issue resolutions.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2356 / Standard Missiles Mods

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	8.164	11.729	0.000	0.000	22.500	22.500	66.866	119.990	211.244	255.128	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	8.164	11.729	0.000	0.000	22.500	22.500	66.866	119.990	211.244	255.128	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**8.164**	**11.729**	**0.000**	**0.000**	**22.500**	**22.500**	**66.866**	**119.990**	**211.244**	**255.128**	**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:

FY 2020 funding totals include $0.0M for Base and $22.5M for Overseas Contingency Operations (OCO); of which $22.5M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

SM-2 BLK IIIAZ: The DDG 1000 Standard Missile program of record plan is to procure SM-2 BLK IIIAZ modifications to support deployment of DDG 1000 Class Ships. This line item provided funds to procure SM-2 modification kits to support the DDG 1000 program. FY 2017 was the first year for SM-2 BLK IIIAZ procurement. FY 2017 - 2018 funding supported procurement of Standard Missile modifications to provide SM-2 BLK IIIAZ missiles for DDG 1000 Standard Missile in-service inventory requirement. Funding included modification kit installation in SM-2 BLK IIIA rounds. SM-2 BLK IIIA AEGIS missiles require hardware and software changes to be compatible with the new (non-AEGIS) DDG 1000 radar, combat system, X-band link and interrupted continuous wave illumination. Outyear funding provides round delivery support.

SM-2 BLK IIIC: On 3 November 2017, SM-2 BLK IIIC was designated an accelerated acquisition Maritime Accelerated Capabilities Office (MACO) program by the CNO and ASN(RDA), enabling procurement of a SM-2 medium range active capability beginning in 2021. SM-2 BLK IIIC provides enhanced stream-raid performance against numerous threats via target resolution and missile/target pairing logic, over-the-horizon capability for increased depth of fire, enhanced capability against electronic attack, improved firepower due to decreased dependence on illuminators, and enhanced fuzing via guidance integrated fuzing. Effort leverages to the maximum extent existing SM-2 inventory and common technology to provide an affordable mix of complimentary weapons to meet a broad range of mission requirements. The inventory objective is 1,000 units.

SM Data Link Electronics Assembly: The SM Data Link Electronics Assembly (designated as "Plate 3A") refresh. The Plate 3A is a legacy SM-2 design used on Standard Missile variants. Over the past several years the Plate 3A has experienced parts obsolescence issues that cannot be resolved with low-cost life-of-type buys or minor redesigns. Funding will qualify MDA's new Digital Data Link (DDL) design to provide a functionally equivalent drop-in replacement assembly with updated technology for use in Navy STANDARD Missile. DDL's software defined radios will provide significant inherent additional performance capability, if desired, in the future.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 3: Modification of Missiles	**P-1 Line Item Number / Title:** 2356 / Standard Missiles Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Standard Missiles Mods	P-5a			- / 8.164	- / 11.729	- / 0.000	- / 0.000	- / 22.500	- / 22.500
P-40	**Total Gross/Weapon System Cost**				**- / 8.164**	**- / 11.729**	**- / 0.000**	**- / 0.000**	**- / 22.500**	**- / 22.500**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
The FY20 funding request was changed to realign the start of SM-2 BLKIIIC procurement to FY21. In FY 20, $20M is retained for STANDARD Missile Data Link Electronics Assembly (Plate 3A) refresh. An additional $2.5M of FY 2020 funding for SM-2 IIIAZ will procure spare guidance sections and telemetry, and provide round design agent and field activity engineering services to support round delivery. The increase between FY19 and FY20 reflects the completion of SM-2 BLKIIIAZ modification kit procurement in FY18 and further requirements/funding availability not beginning until FY20.

The FY2020 funding request was also reduced by $6.607M to account for the availability of prior year execution balances.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	P-1 Line Item Number / Title: 2356 / Standard Missiles Mods	Item Number / Title [DODIC]: 1 / Standard Missiles Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	8.164	11.729	0.000	0.000	22.500	22.500
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	8.164	11.729	0.000	0.000	22.500	22.500
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**8.164**	**11.729**	**0.000**	**0.000**	**22.500**	**22.500**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - HARDWARE Cost																		
Recurring Cost																		
1.1.3) FK007 SM-2 BLK IIIAZ MODIFICATION(†)	418,133.33	15	6.272	401,720.00	25	10.043	-	-	-	-	-	0.000	-	-	1.500	-	-	1.500
Subtotal: Recurring Cost	-	-	*6.272*	-	-	*10.043*	-	-	-	-	-	*0.000*	-	-	*1.500*	-	-	*1.500*
Subtotal: Hardware - HARDWARE Cost	**-**	**-**	***6.272***	**-**	**-**	***10.043***	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***1.500***	**-**	**-**	***1.500***
Hardware - PRODUCTION Cost																		
Non Recurring Cost																		
2.1.1) FK830 SM-2 PRODUCTION ENGINEERING/ SUPPORT	-	-	0.927	-	-	0.977	-	-	-	-	-	0.000	-	-	1.000	-	-	1.000
2.1.2) FK850 SM-2 COMPONENT IMPROVEMENT	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	20.000	-	-	20.000
2.1.3) FK950 SM-2 TOOLS AND TEST EQUIPMENT	-	-	0.965	-	-	0.709	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*1.892*	-	-	*1.686*	-	-	-	-	-	*0.000*	-	-	*21.000*	-	-	*21.000*
Subtotal: Hardware - PRODUCTION Cost	**-**	**-**	***1.892***	**-**	**-**	***1.686***	**-**	**-**	**-**	**-**	**-**	***0.000***	**-**	**-**	***21.000***	**-**	**-**	***21.000***
Gross/Weapon System Cost	**-**	**-**	**8.164**	**-**	**-**	**11.729**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**22.500**	**-**	**-**	**22.500**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	**P-1 Line Item Number / Title:** 2356 / Standard Missiles Mods	**Item Number / Title [DODIC]:** 1 / Standard Missiles Mods
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 3	P-1 Line Item Number / Title: 2356 / Standard Missiles Mods	Item Number / Title [DODIC]: 1 / Standard Missiles Mods

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
1.1.3) FK007 SM-2 BLK IIIAZ MODIFICATION		2017	Raytheon CO / Tucson AZ	SS / FPIF	NAVSEA	Jun 2017	Jun 2020	15	418,133.33	Y		
1.1.3) FK007 SM-2 BLK IIIAZ MODIFICATION		2018	Raytheon CO / Tucson AZ	SS / FPIF	NAVSEA	Dec 2018	Jun 2021	25	401,720.00	Y		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 4: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 2420 / Weapons Industrial Facilities

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	335.618	4.021	12.006	0.000	1.958	1.958	1.998	2.041	2.083	2.125	-	361.850
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	335.618	4.021	12.006	0.000	1.958	1.958	1.998	2.041	2.083	2.125	-	361.850
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**335.618**	**4.021**	**12.006**	**0.000**	**1.958**	**1.958**	**1.998**	**2.041**	**2.083**	**2.125**	**-**	**361.850**
(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:

FY 2020 funding totals include $0.0M for Base and $1.958M for Overseas Contingency Operations (OCO); of which $1.958M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Weapons Industrial Facility (WIF) program supports the following NAVSEA Government-Owned Contractor Operated (GOCO) facilities; the active Naval Industrial Reserve Ordnance Plant (NIROP) Allegany Ballistics Laboratory (ABL), Rocket Center, WV, and inactive Naval Weapons Industrial Reserve Plant (NWIRP), Bedford, MA. The budget provides funding for NIROP ABL to recapitalize aging plant infrastructure; enable process improvement to reduce life cycle cost for manufacturing and production of weapon systems; resolve life, safety, and environmental issues; and enact immediate operational support of National Security needs. Capital-type rehabilitation projects at NIROP ABL support weapon systems such as Long Range Land Attack Projectile (LRLAP), Rolling Airframe Missile (RAM), Evolved Sea Sparrow Missile (ESSM), AIM-9X Sidewinder Missile, AIM-9M Sidewinder Missile, FMU-143 Penetrating Bomb Fuze System, Hellfire Missile, Guided Multiple-Launch Rocket System (GMLRS), Advanced Medium-Range Air-to-Air Missile (AMRAAM), Tomahawk GG and Trident GG.

[P5 / FU002 Capital Type Rehabilitation]: This program funds projects that eliminate environmental and safety deficiencies in compliance with local, state, and federal OSHA regulations. These regulations mandate requirements, which must be met if plant shuts down in order to avoid criminal liability, and severe financial penalties. The program also includes critical upgrades to maintain high liability areas such as fire and security systems, roofs, boilers, electrical distribution systems, bridge crane systems, and other structural repairs essential to maintain the industrial integrity of the plant.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 4: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 2420 / Weapons Industrial Facilities	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Weapons Industrial Facilities				- / 335.618	- / 4.021	- / 12.006	- / 0.000	- / 1.958	- / 1.958
P-40	**Total Gross/Weapon System Cost**				**- / 335.618**	**- / 4.021**	**- / 12.006**	**- / 0.000**	**- / 1.958**	**- / 1.958**

*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:
Funding is required to address critical infrastructure issues. The plants have an average age of 45 years and lack of proper maintenance will limit capabilities to maintain scheduled production rates and overall productivity.

Funding for FY 2020 will support the installation of an Explosive Storage Magazine at NIROP ABL to address the increased storage requirements of energetics materials.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2420 / Weapons Industrial Facilities	**Item Number / Title [DODIC]:** 1 / Weapons Industrial Facilities
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	335.618	4.021	12.006	0.000	1.958	1.958
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	335.618	4.021	12.006	0.000	1.958	1.958
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**335.618**	**4.021**	**12.006**	**0.000**	**1.958**	**1.958**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Support Cost																		
1.1) FU002 Capital Type Rehabilitation	-	-	23.473	-	-	4.021	-	-	12.006	-	-	0.000	-	-	1.958	-	-	1.958
Subtotal: Support Cost	**-**	**-**	***23.473***	**-**	**-**	***4.021***	**-**	**-**	***12.006***	**-**	**-**	***0.000***	**-**	**-**	***1.958***	**-**	**-**	***1.958***
Support - Facilities Restoration Cost																		
2.1) FUCA1 Facilities Restoration (ABL)	-	-	216.205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Facilities Restoration Cost	**-**	**-**	***216.205***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Government-Owned Contractor Operated (GOCO) Fac Cost																		
3.1) FU020 NWIRP MCGREGOR	-	-	95.940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Government-Owned Contractor Operated (GOCO) Fac Cost	**-**	**-**	***95.940***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**335.618**	**-**	**-**	**4.021**	**-**	**-**	**12.006**	**-**	**-**	**0.000**	**-**	**-**	**1.958**	**-**	**-**	**1.958**

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 4: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0303109N, 1203109N
Line Item MDAP/MAIS Code: 345		

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	2,100.749	39.532	60.279	0.000	67.380	67.380	53.460	45.985	46.907	47.846	186.272	2,648.410
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,100.749	39.532	60.279	0.000	67.380	67.380	53.460	45.985	46.907	47.846	186.272	2,648.410
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,100.749**	**39.532**	**60.279**	**0.000**	**67.380**	**67.380**	**53.460**	**45.985**	**46.907**	**47.846**	**186.272**	**2,648.410**
(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 Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $67.38M for Overseas Contingency Operations (OCO); of which $67.38M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Mobile User Objective System (MUOS) provides a worldwide, multi-service population of mobile and fixed-site terminal users with ultra-high frequency (UHF), narrowband, and beyond line-of-sight satellite communications (SATCOM).

MUOS significantly increases performance and capacity in support of critical Combatant Command SATCOM priorities. MUOS is the replacement system for the UHF Follow-on (UFO) system, which is currently beyond its design life. MUOS consists of Space, Ground, and User Entry Segments.

The Space Segment consists of 5 geosynchronous satellites, one of which is an on-orbit spare, and provides both a legacy UHF payload, which is backward compatible with UFO, and a Wideband Code Division Multiple Access (WCDMA) payload, which provides 3G cellular-like capability.

The Ground Segment or System consists of four world-wide Radio Access Facilities (RAFs) (Wahiawa, Hawaii; Northwest Chesapeake, Virginia; Niscemi, Italy; and Geraldton, Australia) and two Satellite Control Facilities (Port Hueneme, California and Schriever Air Force Base (AFB), Colorado). Each RAF includes three 60 ft. antennas, and over 50 equipment racks which house a total of 5,000 major hardware components and 250 software applications across the MUOS Program. The RAF in Hawaii includes a Network Management Facility (NMF). The RAFs in Hawaii and Virginia each include a Switching Facility (SF). All four RAFs and two Satellite Control Facilities are considered Ground Sites.

The User Entry Segment consists of the MUOS waveform that is ultimately integrated into MUOS-capable terminals. The MUOS legacy capability has been in operational use since 2012, and the WCDMA capability transitioned to Early Combatant Command Use in July 2016.

In addition to providing UHF SATCOM for the Department of Defense (DoD), the Navy has the overall responsibility to deliver the end-to-end (E2E) MUOS capability to the warfighter. This responsibility involves systems engineering, integration, and test management of all MUOS system of system activities, to include the integration of the MUOS waveform into MUOS-capable terminals and the subsequent terminal certification testing.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 4: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0303109N, 1203109N
Line Item MDAP/MAIS Code: 345		

Based on the results of the Multi-Service Operational Test and Evaluation-2 (MOT&E-2) in June 2016, Director, Operational Test & Evaluation (DOT&E) assessed MUOS not operationally effective or suitable. As a result, the program has been addressing the findings and preparing for MOT&E-2B in FY19 and Full Operational Capability (FOC) in FY20. MOT&E-2B is scheduled to start in May 2019 and complete in August 2019. Current FOC estimate is Dec 2019 following receipt of the MOT&E-2B test report.

Beginning in FY17, the MUOS program's focus has been upgrading all four Radio Access Facilities and two Satellite Control Facilities to address ongoing cybersecurity threats, hardware and software obsolescence, and operational deficiency issues.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 4: Support Equipment & Facilities	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0303109N, 1203109N

Line Item MDAP/MAIS Code: 345

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Fleet Satellite Comm Follow-On				- / 2,100.749	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	1 / MUOS Upgrade (TBD)				- / 0.000	- / 39.532	- / 60.279	- / 0.000	- / 67.380	- / 67.380
P-40	**Total Gross/Weapon System Cost**				**- / 2,100.749**	**- / 39.532**	**- / 60.279**	**- / 0.000**	**- / 67.380**	**- / 67.380**

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Fleet Satellite Comm Follow-On				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / MUOS Upgrade (TBD)				- / 53.460	- / 45.985	- / 46.907	- / 47.846	- / 186.272	- / 547.661
P-40	**Total Gross/Weapon System Cost**				**- / 53.460**	**- / 45.985**	**- / 46.907**	**- / 47.846**	**- / 186.272**	**- / 2,648.410**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:

The FY20 funding will address obsolescence and cybersecurity vulnerabilities within the MUOS Ground Segment as the system transitions to Full Operational Capability. In FY20, 93% of the hardware (HW) and 94% of the software (SW) will be obsolete, based on current funding levels for FY19. Emerging cybersecurity threats and increasing cybersecurity requirements have resulted in a high number of category I/II cybersecurity vulnerabilities, many of which are directly attributable to obsolescence. Denial of service threats against UHF SATCOM systems have evolved over the past 10 years and continue to proliferate in the UHF spectrum. Implementing Electromagnetic Interference (EMI) mitigations in the MUOS Ground System will ensure the system meets its capacity and link availability requirements.

In FY 2018 and FY 2019 this program has received Congressional reductions of $6.8M and $6.5M, respectively, due to ground system updates excess growth. Further reductions to this program will impact the program's technical refresh and
obsolescence strategy. Procurement of obsolete hardware and software end items would be reduced and correction of cybersecurity vulnerabilities would be deferred, consistent with the amount of the reduction.

The increase in FY20 funding for MUOS Upgrade Mod Kits from FY19 is due to initial procurement of Electromagnetic Interference (EMI) mitigation hardware upgrade. Ground System updates across the FYDP include HW and SW procurements to correct HW/SW deficiencies. Funding is for 6 Technical Insertion Upgrades and 2 Upgrade Mod Kits for each of the six ground sites in each fiscal year through the FYDP. The technical insertion deployment addresses ground system defects which includes associated engineering, integration, test and delivery efforts to address cybersecurity vulnerabilities, and correct issues to ensure readiness levels support the warfighter narrowband SATCOM requirements. The upgrade mod kits include ground system defect resolution as well as addressing HW/SW degradation. Obsolete items being replaced in each fiscal year include DSN Gateway, High Assurance Internet Protocol Encryptors (HAIPE), and back up tape drives/storage arrays.

The quantity of defects is expected to ramp down in FY21, after corrections are made as a result of the MOT&E-2B findings.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	**Item Number / Title [DODIC]:** 1 / Fleet Satellite Comm Follow-On
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	2,100.749	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,100.749	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,100.749**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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)
Flyaway Cost																		
Recurring Cost																		
1.1.1) Ground System Updates	-	-	164.560	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*164.560*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Non Recurring Cost																		
1.2.1) Advance Procurement Prior Years (FY2001-2010)	-	-	118.858	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.2.2) Satellite Procurement (MUOS)	300,796.667	3	902.390	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*1,021.248*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Flyaway Cost	**-**	**-**	***1,185.808***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware Cost																		
Non Recurring Cost																		
2.1.1) EELV Launch Vehicles (MUOS)	147,092.800	5	735.464	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*735.464*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware Cost	**-**	**-**	***735.464***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support Cost																		
3.1) EELV Launch Vehicle Production	-	-	37.345	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.2) Satellite Production	-	-	142.132	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	**Item Number / Title [DODIC]:** 1 / Fleet Satellite Comm Follow-On
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($ 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: Support Cost	-	-	*179.477*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Gross/Weapon System Cost	-	-	2,100.749	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	**Modification Number / Title:** 1 / MUOS Upgrade
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	39.532	60.279	0.000	67.380	67.380	53.460	45.985	46.907	47.846	186.272	547.661
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	39.532	60.279	0.000	67.380	67.380	53.460	45.985	46.907	47.846	186.272	547.661
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**39.532**	**60.279**	**0.000**	**67.380**	**67.380**	**53.460**	**45.985**	**46.907**	**47.846**	**186.272**	**547.661**
(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:

[MUOS Technical Insertion Upgrades] Funding is for 6 defect resolution deployments to each of the six Ground sites in each fiscal year throughout the FYDP. The software upgrades are part of a phased technical insertion. The technical insertion is installed into the hardware housed at each ground site as part of the operational end item requirements of MUOS. The defect resolution deployment addresses ground system defects which includes associated engineering, integration, test and delivery efforts to address cybersecurity vulnerabilities, and correct issues to ensure readiness levels support the warfighter narrowband SATCOM requirements.

[MUOS Upgrade Mod Kits] Production upgrades of MUOS Mod Kits include defect resolution as well as addressing HW/SW obsolescence issues. Obsolete items being replaced in each fiscal year include DSN Gateway, High Assurance Internet Protocol Encryptors (HAIPE), back up tape drives/storage arrays, and Electromagnetic Interference (EMI) mitigation equipment.

[MUOS Tech Refresh] Funding is for engineering analysis of obsolete hardware and software required to determine the necessary upgrade options for HW/SW. Integration and testing of the upgrade options are being done to address system deficiencies.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	**Modification Number / Title:** 1 / MUOS Upgrade
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: MUOS Upgrade												
B Kits												
Recurring												
1.1.1) MUOS Technical Insertion Upgrades - NonOrganic [1]	- / -	6 / 24.211	6 / 29.563	- / 0.000	6 / 30.613	6 / 30.613	6 / 15.722	6 / 16.037	6 / 16.358	6 / 16.684	- / 67.060	42 / 216.248
1.1.2) MUOS Upgrade Mod Kits - NonOrganic	- / -	6 / 5.996	6 / 11.926	- / 0.000	6 / 20.963	6 / 20.963	6 / 16.992	6 / 14.073	6 / 13.107	6 / 22.018	- / 94.992	42 / 200.067
Subtotal: Recurring	*- / 0.000*	*- / 30.207*	*- / 41.489*	*- / 0.000*	*- / 51.576*	*- / 51.576*	*- / 32.714*	*- / 30.110*	*- / 29.465*	*- / 38.702*	*- / 162.052*	*- / 416.315*
Subtotal: MUOS Upgrade	*- / -*	*12 / 30.207*	*12 / 41.489*	*- / 0.000*	*12 / 51.576*	*12 / 51.576*	*12 / 32.714*	*12 / 30.110*	*12 / 29.465*	*12 / 38.702*	*- / 162.052*	*84 / 416.315*
Subtotal: Procurement, All Modification Items	*- / 0.000*	*- / 30.207*	*- / 41.489*	*- / 0.000*	*- / 51.576*	*- / 51.576*	*- / 32.714*	*- / 30.110*	*- / 29.465*	*- / 38.702*	*- / 162.052*	*- / 416.315*
Support *(All Modification Items)*												
2.1) MUOS Tech Refresh	- / 0.000	- / 1.547	- / 10.863	- / 0.000	- / 8.528	- / 8.528	- / 13.327	- / 8.307	- / 9.723	- / 1.270	- / 24.220	- / 77.785
Subtotal: Support	*- / 0.000*	*- / 1.547*	*- / 10.863*	*- / 0.000*	*- / 8.528*	*- / 8.528*	*- / 13.327*	*- / 8.307*	*- / 9.723*	*- / 1.270*	*- / 24.220*	*- / 77.785*
Installation												
Modification Item 1 of 1: MUOS Upgrade	- / 0.000	- / 7.778	- / 7.927	- / 0.000	- / 7.276	- / 7.276	- / 7.419	- / 7.568	- / 7.719	- / 7.874	- / 0.000	- / 53.561
Subtotal: Installation	*- / 0.000*	*- / 7.778*	*- / 7.927*	*- / 0.000*	*- / 7.276*	*- / 7.276*	*- / 7.419*	*- / 7.568*	*- / 7.719*	*- / 7.874*	*- / 0.000*	*- / 53.561*
Total												
Total Cost (Procurement + Support + Installation)	**0.000**	**39.532**	**60.279**	**0.000**	**67.380**	**67.380**	**53.460**	**45.985**	**46.907**	**47.846**	**186.272**	**547.661**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	**Modification Number / Title:** 1 / MUOS Upgrade
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: MUOS Upgrade

Manufacturer Information

Manufacturer Name: Lockheed Martin Space Systems Company — Manufacturer Location: Sunnyvale, CA

Administrative Leadtime *(in Months)*: 1 — Production Leadtime *(in Months)*: 2

Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates	Nov 2017	Nov 2018					
Delivery Dates	Jan 2018	Jan 2019					

Manufacturer Name: TBD — Manufacturer Location: TBD

Administrative Leadtime *(in Months)*: 1 — Production Leadtime *(in Months)*: 2

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

Installation Information

Method of Implementation: Method:: Installation Name: MUOS UPGRADE

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2018	- / -	12 / 7.778	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 7.778
FY 2019	- / -	- / -	12 / 7.927	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	12 / 7.927
FY 2020	- / -	- / -	- / -	0 / 0.000	12 / 7.276	12 / 7.276	- / -	- / -	- / -	- / -	0 / 0.000	12 / 7.276
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	12 / 7.419	- / -	- / -	- / -	0 / 0.000	12 / 7.419
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 7.568	- / -	- / -	0 / 0.000	12 / 7.568
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 7.719	- / -	0 / 0.000	12 / 7.719
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	12 / 7.874	0 / 0.000	12 / 7.874
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	12 / 7.778	12 / 7.927	0 / 0.000	12 / 7.276	12 / 7.276	12 / 7.419	12 / 7.568	12 / 7.719	12 / 7.874	0 / 0.000	84 / 53.561

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	-	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	84
Out	-	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	4	4	4	-	84

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 4	**P-1 Line Item Number / Title:** 2433 / Fleet Satellite Comm Follow-On	**Modification Number / Title:** 1 / MUOS Upgrade
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Footnotes:

(1) 1. For both the MUOS Technical Insertion Upgrades and the MUOS Upgrade Mod Kits, the quantity of 6 represents the number of MUOS ground sites not the quantity being procured in any given year. The 6 ground sites receiving upgrades across the FYDP are Wahiawa, HI; Northwest Chesapeake, VA; Niscemi, IT; Geraldton, AU; Port Hueneme, CA; and Schriever AFB, CO. 2. For both the MUOS Technical Insertion Upgrades and the MUOS Upgrade Mod Kits, the unit cost varies each fiscal year due to the unique configuration of hardware and software requirements needed to address cybersecurity and lifecycle management issues at each of the 6 ground sites. 3. The 6 ground sites will each receive 6 MUOS Technical Insertion Upgrades (total of 36) and 2 MUOS Upgrade Mod Kits (total of 12) during each fiscal year. 4. Increase in FY20 funding for MUOS Upgrade Mod Kits from FY19 is due to initial procurement of Electromagnetic Interference (EMI) mitigation hardware upgrade.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 5: Ordnance Support Equipment	**P-1 Line Item Number / Title:** 2500 / Ordnance Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	415.094	27.629	62.008	0.000	109.427	109.427	144.015	227.401	215.063	223.210	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	415.094	27.629	62.008	0.000	109.427	109.427	144.015	227.401	215.063	223.210	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**415.094**	**27.629**	**62.008**	**0.000**	**109.427**	**109.427**	**144.015**	**227.401**	**215.063**	**223.210**	**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:

FY 2020 funding totals include $0.0M for Base and $109.427M for Overseas Contingency Operations (OCO); of which $109.427M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Additional details with respect to this line item are held at a higher classification. This line item is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 02: Other Missiles / BSA 5: Ordnance Support Equipment	**P-1 Line Item Number / Title:** 2500 / Ordnance Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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	Ordnance Support Equipment				- / 415.094	- / 27.629	- / 62.008	- / 0.000	- / 109.427	- / 109.427
P-40	**Total Gross/Weapon System Cost**				**- / 415.094**	**- / 27.629**	**- / 62.008**	**- / 0.000**	**- / 109.427**	**- / 109.427**

*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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 02 / 5	**P-1 Line Item Number / Title:** 2500 / Ordnance Support Equipment	**Aggregated Items Title:** Ordnance Support Equipment (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
			Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1) Ordnance Support Equipment																				
1) Classified	A		-	-	415.094	-	-	27.629	-	-	62.008	-	-	0.000	-	-	109.427	-	-	109.427
Subtotal: 1) Ordnance Support Equipment			**-**	**-**	***415.094***	**-**	**-**	***27.629***	**-**	**-**	***62.008***	**-**	**-**	***0.000***	**-**	**-**	***109.427***	**-**	**-**	***109.427***
Total			**-**	**-**	**415.094**	**-**	**-**	**27.629**	**-**	**-**	**62.008**	**-**	**-**	**0.000**	**-**	**-**	**109.427**	**-**	**-**	**109.427**

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

Footnotes:

(1) Additional details with respect to this line item are held at a higher classification. This line item is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3113 / Surface Ship Torpedo Def (SSTD)

ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0603506N, 0204228N
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	34.765	5.240	6.353	0.000	5.561	5.561	5.671	5.597	5.446	5.552	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	34.765	5.240	6.353	0.000	5.561	5.561	5.671	5.597	5.446	5.552	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**34.765**	**5.240**	**6.353**	**0.000**	**5.561**	**5.561**	**5.671**	**5.597**	**5.446**	**5.552**	**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:

FY 2020 funding totals include $0.0M for Base and $5.561M for Overseas Contingency Operations (OCO); of which $5.561M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Surface Ship Torpedo Defense (SSTD) provides a layered torpedo defense capability to protect surface ships. Under the WPN appropriation, SSTD is comprised of the Surface Acoustic Device Countermeasures (ADCs) and Countermeasure Anti-Torpedo (CAT). The CAT provides canisterized Anti-Torpedo (ATT). The SSTD WPN account currently procures surface ship ADCs. The ADC is a 3-inch expendable torpedo countermeasure (CM) that provides an over-the-side soft-kill defense against threat torpedoes. WPN funding provides new devices for fleet inventory requirements as identified in Naval Munitions Requirements Process (NMRP) necessary to equip identified surface ships and to replace expiring devices. The funding will also procure and install ready service and deep storage lockers to provide adequate storage on surface ships with countermeasure allowance.

TD010 - ADC HARDWARE: Procures the surface ship ADCs. Quantity requirements determined by NMRP and shelf life of older units (reaching end of life). These requirements vary by ship type, location, and campaign.

TD020 - ADC READY STOWAGE LOCKER: Procure and install ready service and deep storage lockers to hold ADCs on surface ships.

TD830 - PRODUCTION ENGINEERING - In House: Funding provides specification preparation and validation, government prepared production acceptance procedures, production planning, Integrated Logistics Support (ILS) planning, coordination of government furnished information (GFI) and government furnished equipment (GFE), contract deliverable monitoring and prime contractor monitoring of cost/schedule performance. Also provides inservice engineering agent (ISEA) and technical direction agent (TDA) support for ADCs on surface ships.

TD900 - CONSULTING SERVICES: Funding under this cost code provides fair share of contractor support to the program office, including program, financial, acquisition, contract, administration and engineering management support.

TD905 - PRODUCTION ENGINEERING CONTRACTOR: Funding under this cost code provides for production engineering tasks performed by the hardware contractor.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3113 / Surface Ship Torpedo Def (SSTD)

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: 0603506N, 0204228N

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Surface Ship Torpedo Def (SSTD)	P-5a			- / 34.765	- / 5.240	- / 6.353	- / 0.000	- / 5.561	- / 5.561
P-40	**Total Gross/Weapon System Cost**				**- / 34.765**	**- / 5.240**	**- / 6.353**	**- / 0.000**	**- / 5.561**	**- / 5.561**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
The FY 2020 funding procures the surface ship Acoustic Device Countermeasures (ADC), ready stowage lockers, production engineering and contractor support services.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3113 / Surface Ship Torpedo Def (SSTD)	**Item Number / Title [DODIC]:** 1 / Surface Ship Torpedo Def (SSTD)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	34.765	5.240	6.353	0.000	5.561	5.561
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	34.765	5.240	6.353	0.000	5.561	5.561
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**34.765**	**5.240**	**6.353**	**0.000**	**5.561**	**5.561**
(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 Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) TD010 ADC(†)	8,018.33	3,327	26.677	5,676.72	696	3.951	5,784.58	679	3.928	-	-	0.000	5,900.87	697	4.113	5,900.87	697	4.113
1.1.2) TD020 Ready Stowage Locker(†)	-	-	-	130,000.00	6	0.780	132,428.57	14	1.854	-	-	0.000	135,119.40	9	1.216	135,119.40	9	1.216
Subtotal: Recurring Cost	-	-	*26.677*	-	-	*4.731*	-	-	*5.782*	-	-	*0.000*	-	-	*5.329*	-	-	*5.329*
Non Recurring Cost																		
1.2.1) TD010 ADC Non Recurring Costs	-	-	1.800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2.2) TD020 Ready Stow Lockers	-	-	1.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*3.000*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	**-**	**-**	***29.677***	**-**	**-**	***4.731***	**-**	**-**	***5.782***	**-**	**-**	***0.000***	**-**	**-**	***5.329***	**-**	**-**	***5.329***
Support Cost																		
2.1) TD830 PRODUCTION ENGINEERING IN-HOUSE	-	-	3.891	-	-	0.250	-	-	0.307	-	-	0.000	-	-	0.107	-	-	0.107
2.2) TD905 PRODUCTION ENG--CONTRACTOR	-	-	0.621	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3) TD900 CONSULTING SERVICES	-	-	0.576	-	-	0.259	-	-	0.264	-	-	0.000	-	-	0.125	-	-	0.125

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3113 / Surface Ship Torpedo Def (SSTD)	**Item Number / Title [DODIC]:** 1 / Surface Ship Torpedo Def (SSTD)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support Cost	-	-	5.088	-	-	0.509	-	-	0.571	-	-	0.000	-	-	0.232	-	-	0.232
Gross/Weapon System Cost	-	-	34.765	-	-	5.240	-	-	6.353	-	-	0.000	-	-	5.561	-	-	5.561

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3113 / Surface Ship Torpedo Def (SSTD)	Item Number / Title [DODIC]: 1 / Surface Ship Torpedo Def (SSTD)

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) TD010 ADC		2016	ULTRA / Braintree, MA	C / FFP	NUWC Keyport WA	Jul 2016	Jul 2017	325	5,658.46	Y		
1.1.1) TD010 ADC		2017	ULTRA / Braintree, MA	C / FFP	NUWC Keyport WA	May 2017	Nov 2017	701	5,689.02	Y		
1.1.1) TD010 ADC		2018	ULTRA / Braintree, MA	C / FFP	NUWC Keyport WA	Jun 2018	Dec 2018	696	5,676.72	Y		
1.1.1) TD010 ADC		2019	ULTRA / Braintree, MA	C / FFP	NUWC Keyport WA	May 2019	May 2020	679	5,784.58	Y		
1.1.1) TD010 ADC	✓	2020	ULTRA / Braintree, MA	C / FFP	NUWC Keyport WA	May 2020	May 2021	697	5,900.87	Y		
1.1.2) TD020 Ready Stowage Locker		2018	Delphinus / Norfolk, VA	C / CPIF	NSWC Philadelphia	Jun 2018	Jun 2019	6	130,000.00	Y		
1.1.2) TD020 Ready Stowage Locker		2019	Delphinus / Norfolk, VA	C / CPIF	NSWC Philadelphia	May 2019	May 2020	14	132,428.57	Y		
1.1.2) TD020 Ready Stowage Locker	✓	2020	Delphinus / Norfolk, VA	C / CPIF	NSWC Philadelphia	May 2020	May 2021	9	135,119.40	Y		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	26	41	53	-	58	58	71	75	76	68	Continuing	Continuing
Gross/Weapon System Cost *($ in Millions)*	105.628	79.771	103.616	0.000	114.000	114.000	218.392	186.445	199.115	203.091	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	105.628	79.771	103.616	0.000	114.000	114.000	218.392	186.445	199.115	203.091	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**105.628**	**79.771**	**103.616**	**0.000**	**114.000**	**114.000**	**218.392**	**186.445**	**199.115**	**203.091**	**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)*	4,063K	1,946K	1,955K	-	1,966K	1,966K	3,076K	2,486K	2,620K	2,987K	Continuing	Continuing

Description:

FY 2020 funding totals include $0.0M for Base and $114M for Overseas Contingency Operations (OCO); of which $114M and 58 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The MK 48 Mod 7 Heavyweight Torpedo is the U.S. Navy's submarine launched Anti-Submarine Warfare (ASW) and primary Anti-Surface Warfare (ASuW) weapon. Procurements will increase warshot inventory available prior to Major Combat Operations. Heavyweight Torpedo provides the submarine force with an effective weapon against threat submarines and surface combatants to assist in achieving Sea Control and neutralizing or destroying threats to high value vessels. Torpedoes are the only proven weapon system that provides Navy control from sea bed to sea surface.

[P5 / G5001 - MK48 MOD 7 Hardware]: Funding under this cost code supports the award and execution of two competitive contracts for procurement of the MK48 Mod 7 Torpedo Guidance and Control and Afterbody Tail Cone Sections, production test equipment upgrades, engineering change proposals, and non-recurring engineering to resolve production issues including obsolescence. Nonrecurring Engineering (NRE) funds base contract year technology refresh due to obsolescence issues. NRE funds production of Proof of Manufacturing (POM) units, first article testing, tooling, test equipment, procurement of technical data package updates, and start-up costs for production contractors. Engineering Services and Engineering Change Proposals (ECPs) pay for studies, plans, design changes, and implementation of design changes by the contractor(s), primarily due to obsolescence that occurs during the contract performance. Also included in this cost code, is the cost of government installation and integration of MK 48 Mod 7 Guidance and Control and Afterbody Tail Cone Torpedo Sections procured in prior years with War Reserve MK 48 Mod 4 MK 107 Warhead components and Fuel Tanks assembled into an all up round(AUR). Installation costs match procurement delivery timelines. Quality assurance check-out is completed with the test and integration of operational software prior to issue of the MK 48 Mod 7 Torpedo as Warshot or Exercise Torpedo. Diminishing Manufacturing Sources (DMS) cost funds are provided to address obsolescence issues in the Guidance and Control (G&C) and After Body/Tail Cone sections during the production cycle. The contractors will be required to procure and deliver DMS material for these obsolete components.

[P5 / G5004 - Torpedo Other Procurement Investment]: Funding under this cost provides for additional Warhead electronics (new WES , Exploder, and Arming Device) and Fuel Tanks in FY 2021 to FY 2023 utilizing a new competitive MK48 Mod 7 G&C contract in order to replace the Warshot Fuel Tanks and Warhead Sections which were used by the MK48 Mod 7 Torpedo Program from FY 2016 to FY 2020 to assemble an All-Up-Round Torpedo.

[P5 / G5003 - Support and Ancillary Equipment]: Funding under this cost code provides procurement and maintenance of support, technology refresh of test equipment at Naval Undersea Warfare Centers (NUWC) Keyport (KPT) and Newport (NPT), and the contractor facility for assembly, testing and integration.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P5 / G5830 - Production Engineering]: Funding under this cost code provides for production tasks performed by NUWC NPT and KPT and includes review of contractor generated Engineering Change Proposals (ECPs), review and resolution of contractor failures and proposed corrective action, configuration management activities, contractor monitoring, risk analysis, technical problem resolution, software engineering, safety, integrated logistics support, environmental engineering, information systems, test equipment, software maintenance and updates, and refurbishment of notable test equipment to provide to the contractors. Funding maintains production specification in accordance with production processes, provides subject matter experts to support root cause analysis of failed contractor hardware, and monitors contractor defect and reduction processes to ensure deficiencies are effectively addressed. Funding is also provided for program office acquisition support.

[P5 / G5840 - Quality Assurance]: Funding under this cost code provides for quality assurance (QA) tasks performed by NUWC Keyport (KPT) and Newport (NPT) including: QA review of the contractor and subcontractor data, review of documentation indicating conformity to product performance requirements, and review of objective quality evidence.

[P5 / G5860 - Acceptance T&E]: Funding under this cost code provides for integration and production acceptance testing of prime contractor hardware sections in an MK 48 Mod 7 All Up Round (AUR) Torpedo.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo	
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / MK-48 Torpedo	P-5a, P-21			26 / 105.628	41 / 79.771	53 / 103.616	- / 0.000	58 / 114.000	58 / 114.000
P-40	**Total Gross/Weapon System Cost**				**26 / 105.628**	**41 / 79.771**	**53 / 103.616**	**- / 0.000**	**58 / 114.000**	**58 / 114.000**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 Program changes:

Hardware - G5001 - MK48 MOD 7 Hardware Cost:
- (1.1.1 and 1.1.2) G&C and AB/TC Sections: Procurement quantity increases from 53 in FY19 to 58 in FY20 to support the Navy's requirement for additional warshot torpedoes available for Pre-Combat loadout (Pre-CLO).

- (1.1.3) Contractor Engineering Services / ECPs: Continued effort for the obsolescence redesign/technology refresh of the Warhead Electronics Section (WES) design. The WES was designed in the 1980's and the current hardware and software design is not supportable or procurable requiring redesign, integration and test. Without redesign of the WES the Program will not have the WES section that is required in support of the FY21 and beyond procurements and the Navy will not be able to assemble All Up Round warshots.

- (1.1.4) Installation: Provides funding for government installation and integration of MK 48 Mod 7 Guidance and Control and Afterbody Tail Cone Torpedo Sections procured in prior years per the P-21.

G5860 Acceptance Test & Evaluation:
- (6.1) Acceptance T&E: Increase in funding is required in FY20 for WES Proof of Manufacturing (POM) unit acceptance and testing in support of restart of warhead electronics section (WES) production.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	26	41	53	-	58	58
Gross/Weapon System Cost *($ in Millions)*	105.628	79.771	103.616	0.000	114.000	114.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	105.628	79.771	103.616	0.000	114.000	114.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**105.628**	**79.771**	**103.616**	**0.000**	**114.000**	**114.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	4,063K	1,946K	1,955K	-	1,966K	1,966K

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - G5001 - MK48 MOD 7 Hardware Cost																		
Recurring Cost																		
1.1.1) Guidance & Control (G&C) Section(†) (1)	852,461.54	26	22.164	591,036.44	41	24.232	536,195.85	53	28.418	-	-	0.000	537,103.45	58	31.152	537,103.45	58	31.152
1.1.2) After Body/Tail Cone(†) (2)	880,346.15	26	22.889	803,054.22	41	32.925	830,309.64	53	44.006	-	-	0.000	817,913.79	58	47.439	817,913.79	58	47.439
1.1.3) Contractor Engineering Services / ECPs	-	-	15.127	-	-	12.334	-	-	18.523	-	-	0.000	-	-	17.008	-	-	17.008
1.1.4) Installation (3)	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	4.092	-	-	4.092
1.1.5) Diminshing Manufacturing Sources	-	-	2.000	-	-	0.500	-	-	0.300	-	-	0.000	-	-	0.250	-	-	0.250
Subtotal: Recurring Cost	-	-	*62.180*	-	-	*69.991*	-	-	*91.247*	-	-	*0.000*	-	-	*99.941*	-	-	*99.941*
Non Recurring Cost																		
1.2.1) Non Recurring Engineering	-	-	31.645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*31.645*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - G5001 - MK48 MOD 7 Hardware Cost	**-**	**-**	***93.825***	**-**	**-**	***69.991***	**-**	**-**	***91.247***	**-**	**-**	***0.000***	**-**	**-**	***99.941***	**-**	**-**	***99.941***
Support - G5003 - Support and Ancillary Equipment Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3117 / MK-48 Torpedo	Item Number / Title [DODIC]: 1 / MK-48 Torpedo
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
3.1) Support and Ancillary Equipment	-	-	2.593	-	-	1.247	-	-	1.570	-	-	0.000	-	-	1.601	-	-	1.601
Subtotal: Support - G5003 - Support and Ancillary Equipment Cost	**-**	**-**	***2.593***	**-**	**-**	***1.247***	**-**	**-**	***1.570***	**-**	**-**	***0.000***	**-**	**-**	***1.601***	**-**	**-**	***1.601***
Support - G5830 - Production Engineering Cost																		
4.1) Production Engineering (In-House & Ctr)	-	-	8.114	-	-	6.379	-	-	6.810	-	-	0.000	-	-	6.926	-	-	6.926
Subtotal: Support - G5830 - Production Engineering Cost	**-**	**-**	***8.114***	**-**	**-**	***6.379***	**-**	**-**	***6.810***	**-**	**-**	***0.000***	**-**	**-**	***6.926***	**-**	**-**	***6.926***
Support - G5840 - Quality Assurance Cost																		
5.1) Quality Assurance	-	-	1.096	-	-	1.118	-	-	1.995	-	-	0.000	-	-	2.035	-	-	2.035
Subtotal: Support - G5840 - Quality Assurance Cost	**-**	**-**	***1.096***	**-**	**-**	***1.118***	**-**	**-**	***1.995***	**-**	**-**	***0.000***	**-**	**-**	***2.035***	**-**	**-**	***2.035***
Support - G5860 - Acceptance T&E Cost																		
6.1) Acceptance T&E (4)	-	-	-	-	-	1.036	-	-	1.994	-	-	0.000	-	-	3.497	-	-	3.497
Subtotal: Support - G5860 - Acceptance T&E Cost	**-**	**-**	**-**	**-**	**-**	***1.036***	**-**	**-**	***1.994***	**-**	**-**	***0.000***	**-**	**-**	***3.497***	**-**	**-**	***3.497***
Gross/Weapon System Cost	**4,063K**	**26**	**105.628**	**1,946K**	**41**	**79.771**	**1,955K**	**53**	**103.616**	**-**	**-**	**0.000**	**1,966K**	**58**	**114.000**	**1,966K**	**58**	**114.000**

(†) indicates the presence of a P-5a

Footnotes:

(1) G5001:(1.1.1) Guidance & Control (G&C) Section FY 2020 funding increase for the procurement of 58 G&C Sections.

(2) G5001: (1.1.2) After Body/Tail Cone FY 2020 funding increase for the procurement of 58 AB/TC Sections.

(3) G5001: (1.1.4) Installation: Provides funding for government installation and integration of MK 48 Mod 7 Guidance and Control and Afterbody Tail Cone Torpedo Sections procured in prior years per the P-21.

(4) G5860: (6.1) Acceptance T&E: Increase in funding is required in FY20 for WES Proof of Manufacturing (POM) unit acceptance and testing in support of restart of warhead section electronics production.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3117 / MK-48 Torpedo	Item Number / Title [DODIC]: 1 / MK-48 Torpedo

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) Guidance & Control (G&C) Section(†)		2016	G&C Section LMS - FY16 (5) / Marion, MA	C / FFP	NAVSEA	May 2016	Oct 2019	8	1,418K	Y		May 2015
1.1.1) Guidance & Control (G&C) Section(†)		2017	G&C Section LMS - FY17 (6) / Marion, MA	C / FFP	NAVSEA	Sep 2017	May 2020	18	600,930.00	Y		
1.1.1) Guidance & Control (G&C) Section(†)		2018	G&C Section LMS - FY18 (7) / Marion, MA	C / FFP	NAVSEA	Aug 2018	Sep 2020	41	591,036.44	Y		
1.1.1) Guidance & Control (G&C) Section(†)		2019	G&C Section LMS - FY19 (8) / Marion, MA	C / FFP	NAVSEA	May 2019	Jan 2021	53	536,195.85	Y		
1.1.1) Guidance & Control (G&C) Section(†)	✓	2020 (9)	G&C Section LMS - FY20 (10) / Marion, MA	C / FFP	NAVSEA	May 2020	Nov 2021	58	537,103.45	Y		
1.1.2) After Body/Tail Cone(†)		2016	Afterbody/Tail Cone Section SAIC - FY16 / Mclean, VA	C / FFP	NAVSEA	Sep 2016	Jun 2019	8	933,250.00	Y		Jul 2015
1.1.2) After Body/Tail Cone(†)		2017	Afterbody/Tail Cone Section SAIC - FY17 / Mclean, VA	C / FFP	NAVSEA	Sep 2017	Apr 2020	18	856,853.00	Y		
1.1.2) After Body/Tail Cone(†)		2018	Afterbody/Tail Cone Section SAIC - FY18 / Mclean, VA	C / FFP	NAVSEA	Jun 2018	Apr 2020	41	803,054.22	Y		
1.1.2) After Body/Tail Cone(†)		2019	Afterbody/Tail Cone Section SAIC - FY19 / Mclean, VA	C / FFP	NAVSEA	May 2019	Dec 2020	53	830,309.64	Y		
1.1.2) After Body/Tail Cone(†)	✓	2020	Afterbody/Tail Cone Section SAIC - FY20 / Mclean, VA	C / FFP	NAVSEA	Jul 2020	Oct 2021	58	817,913.79	Y		

(†) indicates the presence of a P-21

Footnotes:

(5) MSR and EOQ have not yet been determined by the contractor.

(6) MSR and EOQ have not yet been determined by the contractor.

(7) MSR and EOQ have not yet been determined by the contractor.

(8) MSR and EOQ have not yet been determined by the contractor.

(9) Unit cost is based on the contract costs. Unit cost is determined by quantity planned for order. All the production contracts have stair step pricing, so as quantity increases and crosses a stair step, the price steps down

(10) MSR and EOQ have not yet been determined by the contractor.

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1 | **P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo | **Item Number / Title [DODIC]:** 1 / MK-48 Torpedo

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
							Calendar Year 2016												Calendar Year 2017												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) Guidance & Control (G&C) Section [1]																															
	1	2016	NAVY	8	0	8								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	2	2017	NAVY	18	0	18																								A -	18
	3	2018	NAVY	41	0	41																									41
	4	2019	NAVY	53	0	53																									53
✓	5	2020	NAVY	58	0	58																									58
1.1.2) After Body/Tail Cone [2]																															
	6	2016	NAVY	8	0	8												A -	-	-	-	-	-	-	-	-	-	-	-	-	8
	7	2017	NAVY	18	0	18																								A -	18
	8	2018	NAVY	41	0	41																									41
	9	2019	NAVY	53	0	53																									53
✓	10	2020	NAVY	58	0	58																									58
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1 | **P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo | **Item Number / Title [DODIC]:** 1 / MK-48 Torpedo

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) Guidance & Control (G&C) Section [1]																															
	1	2016	NAVY	8	0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	2	2017	NAVY	18	0	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
	3	2018	NAVY	41	0	41											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	41
	4	2019	NAVY	53	0	53																				A -	-	-	-	-	53
✓	5	2020	NAVY	58	0	58																									58
1.1.2) After Body/Tail Cone [2]																															
	6	2016	NAVY	8	0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	4
	7	2017	NAVY	18	0	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
	8	2018	NAVY	41	0	41									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41
	9	2019	NAVY	53	0	53																				A -	-	-	-	-	53
✓	10	2020	NAVY	58	0	58																									58
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo

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) Guidance & Control (G&C) Section [1]																															
	1	2016	NAVY	8	0	8	1	1	1	1	1	1	1	1																	0
	2	2017	NAVY	18	0	18	-	-	-	-	-	-	-	6	8	4															0
	3	2018	NAVY	41	0	41	-	-	-	-	-	-	-	-	-	-	-	8	8	7	7	8	3								0
	4	2019	NAVY	53	0	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	6	6	6	5	5	5	5	5
✓	5	2020	NAVY	58	0	58								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
1.1.2) After Body/Tail Cone [2]																															
	6	2016	NAVY	8	4	4	1	1	1	1																					0
	7	2017	NAVY	18	0	18	-	-	-	-	-	-	3	3	4	4	4														0
	8	2018	NAVY	41	0	41	-	-	-	-	-	-	3	3	3	3	3	6	7	7	6										0
	9	2019	NAVY	53	0	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	6	6	6	5	5	5	5	5	0
✓	10	2020	NAVY	58	0	58										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo

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) Guidance & Control (G&C) Section [1]																															
	1	2016	NAVY	8	8	0																									0
	2	2017	NAVY	18	18	0																									0
	3	2018	NAVY	41	41	0																									0
	4	2019	NAVY	53	48	5	5																								0
✓	5	2020	NAVY	58	0	58	-	5	5	6	6	6	6	6	6	6	6														0
1.1.2) After Body/Tail Cone [2]																															
	6	2016	NAVY	8	8	0																									0
	7	2017	NAVY	18	18	0																									0
	8	2018	NAVY	41	41	0																									0
	9	2019	NAVY	53	53	0																									0
✓	10	2020	NAVY	58	0	58	5	5	6	6	6	6	6	6	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3117 / MK-48 Torpedo	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	G&C Section LMS - FY16 (5) - Marion, MA			50	0	0	41	41	0	0	0	0
2	G&C Section LMS - FY17 (6) - Marion, MA			100	0	0	32	32	0	0	0	0
3	G&C Section LMS - FY18 (7) - Marion, MA			100	0	0	25	25	0	0	0	0
4	G&C Section LMS - FY19 (8) - Marion, MA			100	0	0	20	20	0	0	0	0
5	G&C Section LMS - FY20 (10) - Marion, MA			100	0	0	18	18	0	0	0	0
6	Afterbody/Tail Cone Section SAIC - FY16 - Mclean, VA			TBD	0	0	33	33	0	0	0	0
7	Afterbody/Tail Cone Section SAIC - FY17 - Mclean, VA			TBD	0	0	28	28	0	0	0	0
8	Afterbody/Tail Cone Section SAIC - FY18 - Mclean, VA			TBD	0	0	24	24	0	0	22	22
9	Afterbody/Tail Cone Section SAIC - FY19 - Mclean, VA			TBD	0	0	17	17	0	0	0	0
10	Afterbody/Tail Cone Section SAIC - FY20 - Mclean, VA			TBD	0	0	15	15	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:

(5) MSR and EOQ have not yet been determined by the contractor.

(6) MSR and EOQ have not yet been determined by the contractor.

(7) MSR and EOQ have not yet been determined by the contractor.

(8) MSR and EOQ have not yet been determined by the contractor.

(10) MSR and EOQ have not yet been determined by the contractor.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3141 / ASW Targets

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	202.777	12.399	12.324	0.000	15.095	15.095	13.681	13.912	14.156	14.412	-	298.756
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	202.777	12.399	12.324	0.000	15.095	15.095	13.681	13.912	14.156	14.412	-	298.756
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**202.777**	**12.399**	**12.324**	**0.000**	**15.095**	**15.095**	**13.681**	**13.912**	**14.156**	**14.412**	**-**	**298.756**
(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:

FY 2020 funding totals include $0.0M for Base and $15.095M for Overseas Contingency Operations (OCO); of which $15.095M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The MK-39 MOD 3 Expendable Mobile ASW Training Target (EMATT) is a small self-propelled underwater vehicle launched from fixed wing and rotary wing Anti-Submarine Warfare (ASW) aircraft and ASW surface ships for the purpose of providing basic open ocean sonar training and torpedo placement exercises. Its operation consists of a dynamic run trajectory that is actively controlled in depth and course with pre-programmable run maneuvers emulating threat submarines and is detectable by all current U.S. ASW Platforms.

The MK-30 is an ASW training target for Navy surface ships, submarines, and aircrafts that are capable of simulating submarine threats anticipated in the twenty-first century littoral warfare environment.

The MK-30 Service Life Extension Program (SLEP) extends the useful service life of MK-30 ASW Targets to meet annual fleet training requirements.

[P5 / TG002 - MK39 MOD 3 EMATT]: Funding under this cost code provides for the procurement of MK-39 MOD 3 EMATT vehicles and Non-Recurring Engineering (NRE). NRE funds the cost of Pre-Proof of Manufacturing (POM) units and POM units, first article testing, tooling and test equipment, procurement of technical data package updates, start-up costs, and other one-time costs for production contractors.

[P5 / TG007 - MK30 SLEP]: MK 30 MOD 1 Service Life Extension Program (SLEP) extends the MK 30 MOD 1 ASW Target Service Life to continue the use of MK 30 ASW Target until FY27. The SLEP efforts required include the replacement of critical navigation subsystems, power distribution subsystems, mechanical parts including replacement hull sections, and test equipment that are no longer procurable and/or can no longer be maintained or that needs updates for cyber vulnerabilities.

[P5 / TG832 - MK39 MOD 2/3 EMATT PROD ENG (IN-HOUSE)]: Funding under this cost code provides for production engineering tasks performed by NUWC NPT and KPT including EMATT program management support, systems engineering, and production engineering.

[P5 / TG842 - MK39 MOD 2/3 EMATT QUALITY ASSURANCE]: Funding under this cost code provides for quality assurance efforts in support of the EMATT program.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3141 / ASW Targets	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P5 / TG862 - MK39MOD 2/3 EMATT ACCEPTANCE T&E]: Funding under this cost code provides for production acceptance of contractor hardware for the EMATT program.

[P5 / TG900 - MK39 MOD 2/3 EMATT CONSULTING SERVICES]: Funding under this cost code provides for contractor support services at the program office.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 1: Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3141 / ASW Targets

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / ASW TARGETS	P-5a, P-21			- / 202.777	- / 12.399	- / 12.324	- / 0.000	- / 15.095	- / 15.095
P-40	**Total Gross/Weapon System Cost**				**- / 202.777**	**- / 12.399**	**- / 12.324**	**- / 0.000**	**- / 15.095**	**- / 15.095**

*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:
FY2020:

TG002(1.2.1) Non-Recurring: EMATT Non Recurring Effort (NRE) has a one-time increase of $1.7M in FY20 to procure the Technical Data Package (TDP) for the MK39 Mod 3 EMATT to increase competition on future contracts. The Government controlled document for the program is the Performance Specification. The two prior 5 year production contracts Request For Proposal received one bid. Feedback from industry is that to allow other companies besides the incumbent to participate will require the government to supply a TDP to base the bid on. TDP funding is needed in FY20 to support an FY22 competition. Procurement of the TDP is a firm fixed price option on the current contract.

TG007(3.1.1) MK30 SLEP: Funding increase of $1.2M for SLEP tasks are due to known sustainability issues and required redesign in the MK30 Mod 1. The SLEP tasks are to allow the MK30 MOD 1 to continue to operate until at least 2027. Targets in the inventory were manufactured in the 70's and 80's with some having over 40 years in service.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3141 / ASW Targets	Item Number / Title [DODIC]: 1 / ASW TARGETS
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	202.777	12.399	12.324	0.000	15.095	15.095
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	202.777	12.399	12.324	0.000	15.095	15.095
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**202.777**	**12.399**	**12.324**	**0.000**	**15.095**	**15.095**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - TG002 - MK39 MOD 3 EMATT Cost																		
Recurring Cost																		
1.1.1) MK39 MOD 3 EMATTs(†)	16,430.39	3,857	63.372	6,925.00	1,017	7.043	7,097.00	983	6.976	-	-	0.000	7,274.00	964	7.012	7,274.00	964	7.012
1.1.2) ENGINEERING SERVICES/ECP	-	-	6.419	-	-	0.445	-	-	0.580	-	-	0.000	-	-	0.594	-	-	0.594
1.1.3) MK39 MOD 2 EMATT TARGETS OPTION 2	6,357.27	1,100	6.993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*76.784*	-	-	*7.488*	-	-	*7.556*	-	-	*0.000*	-	-	*7.606*	-	-	*7.606*
Non Recurring Cost																		
1.2.1) NON-RECURRING (1)	-	-	2.510	-	-	-	-	-	-	-	-	0.000	-	-	1.700	-	-	1.700
Subtotal: Non Recurring Cost	-	-	*2.510*	-	-	-	-	-	-	-	-	*0.000*	-	-	*1.700*	-	-	*1.700*
Subtotal: Hardware - TG002 - MK39 MOD 3 EMATT Cost	**-**	**-**	***79.294***	**-**	**-**	***7.488***	**-**	**-**	***7.556***	**-**	**-**	***0.000***	**-**	**-**	***9.306***	**-**	**-**	***9.306***
Hardware - TG005 - MK30 MOD 2 PROCUREMENT Cost																		
Recurring Cost																		
2.1.1) MK30 MOD 2 TARGETS	-	-	52.759	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.1.2) ENGINEERING COSTS	-	-	0.750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*53.509*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3141 / ASW Targets	Item Number / Title [DODIC]: 1 / ASW TARGETS
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Hardware - TG005 - MK30 MOD 2 PROCUREMENT Cost	**-**	**-**	***53.509***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - TG007 - MK30 SLEP Cost																		
Recurring Cost																		
3.1.1) MK30 SLEP [2]	-	-	28.064	-	-	3.749	-	-	3.590	-	-	0.000	-	-	4.582	-	-	4.582
Subtotal: Recurring Cost	-	-	*28.064*	-	-	*3.749*	-	-	*3.590*	-	-	*0.000*	-	-	*4.582*	-	-	*4.582*
Subtotal: Hardware - TG007 - MK30 SLEP Cost	**-**	**-**	***28.064***	**-**	**-**	***3.749***	**-**	**-**	***3.590***	**-**	**-**	***0.000***	**-**	**-**	***4.582***	**-**	**-**	***4.582***
Support - TG015 - MK30 SUPPORT & TEST EQUIPMENT Cost																		
4.1) MK30 SUPPORT & TEST EQUIPMENT	-	-	1.122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - TG015 - MK30 SUPPORT & TEST EQUIPMENT Cost	**-**	**-**	***1.122***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - TG832 - MK39 MOD 2/3 EMATT PROD ENG (IN-HOUSE) Cost																		
5.1) MK39 MOD 2/3 EMATT PROD ENG (IN-HOUSE)	-	-	16.693	-	-	0.688	-	-	0.690	-	-	0.000	-	-	0.707	-	-	0.707
Subtotal: Support - TG832 - MK39 MOD 2/3 EMATT PROD ENG (IN-HOUSE) Cost	**-**	**-**	***16.693***	**-**	**-**	***0.688***	**-**	**-**	***0.690***	**-**	**-**	***0.000***	**-**	**-**	***0.707***	**-**	**-**	***0.707***
Support - TG835 - MK30 MOD 2 PROD ENG (IN-HOUSE) Cost																		
6.1) MK30 MOD 2 PROD ENG (IN-HOUSE)	-	-	13.118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - TG835 - MK30 MOD 2 PROD ENG (IN-HOUSE) Cost	**-**	**-**	***13.118***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - TG842 - MK39 MOD 2/3 EMATT QUALITY ASSURANCE Cost																		
7.1) MK39 MOD 2/3 EMATT QUALITY ASSURANCE	-	-	1.738	-	-	0.135	-	-	0.139	-	-	0.000	-	-	0.143	-	-	0.143
Subtotal: Support - TG842 - MK39 MOD 2/3 EMATT QUALITY ASSURANCE Cost	**-**	**-**	***1.738***	**-**	**-**	***0.135***	**-**	**-**	***0.139***	**-**	**-**	***0.000***	**-**	**-**	***0.143***	**-**	**-**	***0.143***
Support - TG862 - MK39MOD 2/3 EMATT ACCEPTANCE T&E Cost																		
8.1) MK39 MOD 2/3 EMATT ACCEPTANCE T&E	-	-	2.716	-	-	0.183	-	-	0.188	-	-	0.000	-	-	0.193	-	-	0.193

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3141 / ASW Targets	Item Number / Title [DODIC]: 1 / ASW TARGETS
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - TG862 - MK39MOD 2/3 EMATT ACCEPTANCE T&E Cost	**-**	**-**	***2.716***	**-**	**-**	***0.183***	**-**	**-**	***0.188***	**-**	**-**	***0.000***	**-**	**-**	***0.193***	**-**	**-**	***0.193***
Support - TG865 - MK30 MOD 2 ACCEPTANCE TESTING Cost																		
9.1) MK30 MOD 2 ACCEPTANCE TESTING	-	-	2.084	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - TG865 - MK30 MOD 2 ACCEPTANCE TESTING Cost	**-**	**-**	***2.084***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - TG900 - MK39 MOD 2/3 EMATT CONSULTING SERVICES Cost																		
10.1) MK39 MOD 2/3 EMATT CONSULTING SERVICES	-	-	4.439	-	-	0.156	-	-	0.161	-	-	0.000	-	-	0.164	-	-	0.164
Subtotal: Support - TG900 - MK39 MOD 2/3 EMATT CONSULTING SERVICES Cost	**-**	**-**	***4.439***	**-**	**-**	***0.156***	**-**	**-**	***0.161***	**-**	**-**	***0.000***	**-**	**-**	***0.164***	**-**	**-**	***0.164***
Gross/Weapon System Cost	**-**	**-**	**202.777**	**-**	**-**	**12.399**	**-**	**-**	**12.324**	**-**	**-**	**0.000**	**-**	**-**	**15.095**	**-**	**-**	**15.095**

(†) indicates the presence of a P-5a

Footnotes:

(1) TG002: EMATT Non Recurring Effort (NRE) has a one-time increase of $1.7M in FY20 to procure the Technical Data Package (TDP) for the MK39 Mod 3 EMATT to increase competition on future contracts. The Government controlled document for the program is the Performance Specification. The two prior 5 year production contracts Request For Proposal received one bid. Feedback from industry is that to allow other companies besides the incumbent to participate will require the government to supply a TDP to base their bid on. TDP funding is needed in FY20 to support an FY22 competition. Procurement of the TDP is a firm fixed price option on the current contract.

(2) TG007: Additional funding of $1.2M/Year was added, starting in FY2020 for MK30 SLEP to address known sustainment and required redesign requirements that are needed to continue to operate the aging MK30 Mod 1.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3141 / ASW Targets	Item Number / Title [DODIC]: 1 / ASW TARGETS

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) MK39 MOD 3 EMATTs(†)		2013	LOCKHEED MARTIN/SIPPICAN FY13 Option 3 / Marion, MA	C / FFP	NUWC NEWPORT	Aug 2013	Oct 2014	840	5,605.95	Y		
1.1.1) MK39 MOD 3 EMATTs(†)		2014	LOCKHEED MARTIN/SIPPICAN FY14 Option 4 / Marion, MA	C / FFP	NUWC NEWPORT	Sep 2014	Jul 2015	690	6,426.00	Y		Aug 2013
1.1.1) MK39 MOD 3 EMATTs(†)		2015	LOCKHEED MARTIN/ SIPPICAN FY15 / Marion, MA	C / FFP	NUWC NEWPORT	Nov 2014	Jul 2017	144	6,426.00	Y		Apr 2014
1.1.1) MK39 MOD 3 EMATTs(†)		2017	LOCKHEED MARTIN/ SIPPICAN FY17 / Marion, MA	C / FFP	NUWC NEWPORT	Nov 2016	Mar 2018	715	6,999.00	Y		
1.1.1) MK39 MOD 3 EMATTs(†)		2018	LOCKHEED MARTIN/ SIPPICAN FY18 / Marion, MA	C / FFP	NUWC NEWPORT	Nov 2017	Jan 2019	1,017	6,925.00	Y		
1.1.1) MK39 MOD 3 EMATTs(†)		2019	LOCKHEED MARTIN/SIPPICAN FY19/20 Option / Marion, MA	C / FFP	NUWC NEWPORT	Dec 2018	Feb 2020	983	7,097.00	Y		
1.1.1) MK39 MOD 3 EMATTs(†)	✓	2020	LOCKHEED MARTIN/SIPPICAN FY19/20 Option / Marion, MA	C / FFP	NUWC NEWPORT	Nov 2019	Jan 2021	964	7,274.00	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3141 / ASW Targets	**Item Number / Title [DODIC]:** 1 / ASW TARGETS

Cost Elements (Units in Each)							Fiscal Year 2013												Fiscal Year 2014												BALANCE
							Calendar Year 2013												Calendar Year 2014												
COO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2012	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) MK39 MOD 3 EMATTs																															
Prior Years Deliveries: 1468																															
	1	2013	NAVY	840	0	840											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	840
	2	2014	NAVY	690	0	690																								A -	690
	3	2015	NAVY	144	0	144																									144
	4	2017	NAVY	715	0	715																									715
	5	2018	NAVY	1,017	0	1,017																									1,017
	6	2019	NAVY	983	0	983																									983
✓	6	2020	NAVY	964	0	964																									964
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1 | **P-1 Line Item Number / Title:** 3141 / ASW Targets | **Item Number / Title [DODIC]:** 1 / ASW TARGETS

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
										Calendar Year 2015												Calendar Year 2016									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	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) MK39 MOD 3 EMATTs																															
Prior Years Deliveries: 1468																															
	1	2013	NAVY	840	0	840	280	-	-	280	-	-	280																		0
	2	2014	NAVY	690	0	690	-	-	-	-	-	-	-	-	-	38	-	-	254	-	-	254	-	144							0
	3	2015	NAVY	144	0	144		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144
	4	2017	NAVY	715	0	715																									715
	5	2018	NAVY	1,017	0	1,017																									1,017
	6	2019	NAVY	983	0	983																									983
✓	6	2020	NAVY	964	0	964																									964
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3141 / ASW Targets	**Item Number / Title [DODIC]:** 1 / ASW TARGETS

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017															Calendar Year 2018									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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) MK39 MOD 3 EMATTs																															
Prior Years Deliveries: 1468																															
	1	2013	NAVY	840	840	0																									0
	2	2014	NAVY	690	690	0																									0
	3	2015	NAVY	144	0	144	-	-	-	-	-	-	-	-	-	102	-	-	-	-	-	-	42								0
	4	2017	NAVY	715	0	715		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	208	-	-	250	-	-	-	257
	5	2018	NAVY	1,017	0	1,017														A -	-	-	-	-	-	-	-	-	-	-	1,017
	6	2019	NAVY	983	0	983																									983
✓	6	2020	NAVY	964	0	964																									964
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	**P-1 Line Item Number / Title:** 3141 / ASW Targets	**Item Number / Title [DODIC]:** 1 / ASW TARGETS

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) MK39 MOD 3 EMATTs																															
Prior Years Deliveries: 1468																															
	1	2013	NAVY	840	840	0																									0
	2	2014	NAVY	690	690	0																									0
	3	2015	NAVY	144	144	0																									0
	4	2017	NAVY	715	458	257	257																								0
	5	2018	NAVY	1,017	0	1,017	-	-	-	333	-	-	-	333	-	-	-	351													0
	6	2019	NAVY	983	0	983			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	333	-	-	-	333	-	-	-	317
✓	6	2020	NAVY	964	0	964														A -	-	-	-	-	-	-	-	-	-	-	964
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1 | **P-1 Line Item Number / Title:** 3141 / ASW Targets | **Item Number / Title [DODIC]:** 1 / ASW TARGETS

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) MK39 MOD 3 EMATTs																															
Prior Years Deliveries: 1468																															
	1	2013	NAVY	840	840	0																									0
	2	2014	NAVY	690	690	0																									0
	3	2015	NAVY	144	144	0																									0
	4	2017	NAVY	715	715	0																									0
	5	2018	NAVY	1,017	1,017	0																									0
	6	2019	NAVY	983	666	317	317																								0
✓	6	2020	NAVY	964	0	964	-	-	-	320	-	-	-	320	-	-	-	324													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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 1	P-1 Line Item Number / Title: 3141 / ASW Targets	Item Number / Title [DODIC]: 1 / ASW TARGETS

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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/ SIPPICAN FY13 Option 3 - Marion, MA	300	1,000	1,800	0	0	17	17	0	0	13	13
2	LOCKHEED MARTIN/ SIPPICAN FY14 Option 4 - Marion, MA	300	1,000	1,800	0	0	20	20	0	0	10	10
3	LOCKHEED MARTIN/ SIPPICAN FY15 - Marion, MA	300	1,000	1,800	0	0	24	24	0	0	10	10
4	LOCKHEED MARTIN/ SIPPICAN FY17 - Marion, MA	300	1,000	1,800	0	0	21	21	0	0	15	15
5	LOCKHEED MARTIN/ SIPPICAN FY18 - Marion, MA	300	1,000	1,800	0	0	21	21	0	0	14	14
6	LOCKHEED MARTIN/ SIPPICAN FY19/20 Option - Marion, MA			TBD	0	0	0	0	0	0	14	14

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	651	-	-	-	-	-	-	6	54	54	-	765
Gross/Weapon System Cost *($ in Millions)*	1,091.168	94.699	83.825	0.000	119.453	119.453	136.042	148.122	198.873	202.841	-	2,075.023
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,091.168	94.699	83.825	0.000	119.453	119.453	136.042	148.122	198.873	202.841	-	2,075.023
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,091.168**	**94.699**	**83.825**	**0.000**	**119.453**	**119.453**	**136.042**	**148.122**	**198.873**	**202.841**	**-**	**2,075.023**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	15.406	6.535	0.000	0.697	0.697	1.507	1.525	1.579	1.611	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	1,676K	-	-	-	-	-	-	24,687K	3,683K	3,756K	-	2,712K

Description:

FY 2020 funding totals include $0.0M for Base and $119.453M for Overseas Contingency Operations (OCO); of which $119.453M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This line item procures MK-54 Mod 0 Torpedo Kits, MK-54 Mod 1 Torpedo Kits, MK-54/Vertical Launch Anti-submarine Rocket (VLA) Conversion Kits, Torpedo Exercise Sections, VLA Components and Advanced Lightweight Torpedo (ALWT) hardware. It also funds the High Altitude ASW Weapon Capability (HAAWC). The MK-54 Mod 0 LWT maximizes the use of Non-Developmental Item (NDI) technologies, incorporating the proven technologies from existing torpedo programs with state of the art Commercial-Off-The-Shelf (COTS) processors and is a modular upgrade to LWT Inventory. MK-54 Mod 1 builds on the MK-54 Mod 0 improvements to expand the torpedoes capability in shallow water littoral environment and also improves the torpedoes counter-countermeasure capability to allow higher effectiveness in current and future threat environments. The MK-54 is an anti-submarine torpedo deployed from surface ships and ASW air platforms in littoral scenarios operating in shallow water acoustic and environmental conditions; effective in the presence of threat countermeasures and capable in deep water engagements. The ALWT builds on the MK 54 LWT and the MK 50 LWT, to provide improved torpedo effectiveness, through warhead, sensing, processing, propulsion and software upgrades.

The procurements for both the MK-54 MOD 0 Kits and MK-54 MOD 1 Low Rate Initial Production (LRIP) kits overlap in FY 2016-FY 2020. HAAWC LRIP WPN begins in FY 2019. ALWT LRIP WPN begins in FY 2022

[P5 / F5104 MK-54 MOD 0]: Funding under this cost code provides for the procurement of MK-54 MOD 0 hardware kits from the contractors (2), Engineering Change Proposals (ECPs) and Non-Recurring Engineering (NRE) to produce pre-Proof of Manufacturing (POM) units and POM units in the base year of a new contract, first article testing, product improvement, tooling and test equipment, procurement of technical data package updates and start-up costs for production contractors. The MK-54 MOD 0 Kits contract, includes Processor Group Assembly (PGA), Control Group Assembly (CGA), Inertial Measurements Unit (IMU), and afterbody components and cabling. The MK-54 MOD 0 Array Nose Assembly (ANA) kits contract, consists of array receivers and transmitters. Both contracts were competitively awarded. These items are assembled/installed with an MK-46 torpedo warhead and an upgraded MK-46 afterbody. Also included is government installation of the kits into All Up Rounds (AUR). Diminishing Manufacturing Sources (DMS) costs fund the procurement of obsolete commercial material to avoid the redesign and requalification of the electronics during the production cycle.

[P5 / F5110 MK-54 MOD 1 HARDWARE]: Funding under this cost code provides for procurement of MK-54 MOD 1 hardware kits from the contractors (2), Engineering Change Proposals (ECPs) and Non-Recurring Engineering (NRE) to produce Proof of Manufacturing (POM) units, first article testing, product improvement, tooling and test equipment, procurement of technical data package updates, and start-

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

up costs for production contractors. The MK-54 Mod 0 Kits contract provides the afterbody upgrade components, Inertial Measurements Unit (IMU) and Control Group Assembly (CGA) for the MK54 MOD1 Kit. The MK54 MOD 1 Array contract provides the new 112 element array, receiver, transmitter, and Processor Group Assembly (PGA). Also included is government installation of the kits into All Up Rounds(AUR). Diminishing Manufacturing Sources (DMS) costs fund the procurement of obsolete commercial material to avoid redesign and requalification of the electronics during the production cycle.

[P5 / F5105 FLEET EXERCISE SYSTEMS]: Funding under this cost code provides for procurement of MK-54 Fleet Exercise Sections (FES) utilized during in-water acceptance testing of MK-54 kits, fleet exercises and developmental and operational testing.

[P5 / F5107 MK-54/ VLA KITS]: Funding under this cost code provides for procurement of MK-54 VLA upgrade kits, associated hardware, installation costs, and the associated engineering tasks, which supports the conversion and upgrade of existing MK-46 VLA's to make them compatible with the new MK-54 Mod 0 Torpedo. The MK-54 VLA upgrade kit is comprised of an upgraded Digital Auto-Pilot Control (DAC) unit, upgraded air stabilizer, upgraded Thrust Vector Controller (TVC), new MK-54 Torpedo Downloader System (TDS) payload cable, and new nose cap. The MK-54/VLA kit procures and installs modified VLA items for MK-54 compatibility. A MK-54/VLA kit consists of modifications to the digital autopilot and air stabilizer and new nose caps and cables. Funding in this cost code also pays for the upgrade of existing VLA canisters to be compatible with the MK-54 VLA torpedo downloader capability.

[P5 / F5109 HAAWC]: Funding under this cost code provides for procurement, Engineering Change Proposals (ECPs) and non-recurring engineering of the MK-54 High Altitude ASW Weapon Capability (HAAWC) for the P-8 aircraft. HAAWC is an Air-Launched Accessory (ALA) that allows for employment of the MK-54 outside the current fixed wing air launch envelope. The nonrecurring cost sub-cost element is required for redesign due to obsolescence and qualification of new products or contractors and proof of manufacturing units for first article testing, as well as product improvement, value engineering, tooling, test equipment, procurement of technical data package updates, start-up costs, and other one-time costs in the first year of the production contract.

[P5 / F5003 SUPPORT EQUIPMENT]: Funding under this cost code provides for procurement and maintenance of support and test equipment at Naval Undersea Warfare Centers (NUWC) Keyport and Newport, and the contractor facility for assembly, testing, and integration.

[P5 / F5830 PRODUCTION ENGINEERING IN-HOUSE]: Funding under this cost code provides for production engineering tasks performed by NUWC Newport and Keyport and includes review of contractor generated ECPs, review and resolution of contractor failures and proposed corrective action, configuration management activities, contractor monitoring, risk analysis, technical problem resolution, software engineering, safety, integrated logistics support, environmental engineering, and information systems. Funding maintains production specification in accordance with production processes and provides subject matter experts to support root cause analysis of failed contractor hardware and monitor contractor defect resolution and reduction processes to ensure deficiencies are effectively addressed.

[P5 / F5840 QUALITY ASSURANCE]: Funding under this cost code provides for quality assurance tasks performed by Naval Undersea Warfare Center (NUWC) Newport and Keyport including: conducting quality assurance reviews of the contractor and subcontractors, documentation indicating contractor conformity to product performance requirements, and review of objective quality evidence.

[P5 / F5860 ACCEPT TEST & EVALUATION]: Funding under this cost code provides for government production acceptance test planning and conducting the production acceptance test program of contractor hardware, including in-water testing of the torpedoes on department ranges.

[P5 / F5900 PRODUCTION ENGINEERING CONTRACTOR]: Funding under this cost code provides for contractor support to the program office.

[P5 / F5103 FIELD SUPPORT OPERATIONS]: Funding previously allocated for field support tasks to upgrade MK-46 Torpedo VLA to MK-54 Mod 0 Torpedo VLA.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / MK-54 Torpedo Mods	P-5a, P-21			651 / 1,091.168	- / 94.699	- / 83.825	- / 0.000	- / 119.453	- / 119.453
P-40	**Total Gross/Weapon System Cost**				**651 / 1,091.168**	**- / 94.699**	**- / 83.825**	**- / 0.000**	**- / 119.453**	**- / 119.453**

*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:
FY20 program funding changes:
- COST CODE F5104 ITEM 1.1.1 MK 54 Kits MOD 0: Unit cost increase is due to lower quantity procured and actual stair step pricing in the contract.

- COST CODE F5110 ITEM 1.1.2 MK-54 ENGINEERING SERVICES / ECPs FOR KITS: Increased funding $500K over inflation to do a new subcontractor for array material and anticipated increased effort to support ECPs.

- COST CODE F5104 ITEM 1.1.3 MK 54 MOD 0 Kit Installation: The program will install procured kits delivered per the P-21 exhibit. Installation occurs one month after delivery and the installation is budgeted for in the year the installation is planned to occur. In FY 20, 364 Kits are planned for installation; an increase from the orginal 120 due to subcontractor bankruptcy and requalification efforts causing delivery delays from FY19 to FY20. Installation occurs one month after delivery and the installation is budgeted for in the year the installation is planned to occur.

- COST CODE F5110 ITEM 2.1.3 MK-54 ENGINEERING SERVICES / ECPS FOR KITS: Increased in FY 2020 due to the need to redesign the Torpedo electronics, which are obsolete. The redesign will include new Commercial Off the Shelf (COTS) processors, which increase the ability to continue software improvements to the weapon due to faster processors and improved communication protocols. The funding in FY20 will be used to complete design work and procure proof of design units to test the design and perform software integration. The redesign is necessary because electronic parts from the original design that started in FY06 are no longer available to make the Torpedo. Bridge buys of available electronic parts have been executed to support production for FY18-21. The redesign started in FY19 and continue through FY22 until a new design for the electronics is available and qualified. Production will stop in FY22 unless the redesign is funded, which will significantly impact the small business workforce producing the MK54 MOD 1 sonar section.

- COST CODE F5110 ITEM 2.1.4 MK 54 MOD 1 INSTALLATION: Funding provides for government installation of the MK54 Mod 1 kits and Afterbodies into All Up Rounds(AUR) as shown on the P-21. Installation occurs one month after delivery and the installation is budgeted for in the year the installation is planned to occur.

- COST CODE F5109 ITEM 7.1.1 HAAWC: Funding under this cost code provides for the procurement of MK54 High Altitude ASW Weapon Capability. Unit cost in FY20 reflects projected costs under new LRIP contract, which is higher than FY19 LRIP unit cost under the development contract, which was awarded and prices established in 2013 before actual production costs were understood.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods	**Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	651	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,091.168	94.699	83.825	0.000	119.453	119.453
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,091.168	94.699	83.825	0.000	119.453	119.453
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,091.168**	**94.699**	**83.825**	**0.000**	**119.453**	**119.453**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	15.406	6.535	0.000	0.697	0.697
Gross/Weapon System Unit Cost *($ in Dollars)*	1,676K	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - F5104 MK-54 MOD 0 Cost																		
Recurring Cost																		
1.1.1) MK-54 KITS - MOD 0 (†) (1)	406,429.61	1,371	557.215	335,625.00	104	34.905	371,969.70	66	24.550	-	-	0.000	377,119.00	42	15.839	377,119.00	42	15.839
1.1.2) MK-54 ENGINEERING SERVICES/ECPS (2)	-	-	26.518	-	-	4.428	-	-	3.514	-	-	0.000	-	-	4.383	-	-	4.383
1.1.3) MK-54 INSTALLATION INTO LEGACY TORPEDOS (3)	-	-	51.331	-	-	3.180	-	-	4.860	-	-	0.000	-	-	20.020	-	-	20.020
1.1.4) DIMINISHING MANUFACTURING SOURCES	-	-	1.025	-	-	0.524	-	-	0.533	-	-	0.000	-	-	0.542	-	-	0.542
1.1.5) MK-54 Other	-	-	9.826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*645.915*	-	-	*43.037*	-	-	*33.457*	-	-	*0.000*	-	-	*40.784*	-	-	*40.784*
Non Recurring Cost																		
1.2.1) MK-54 NRE	-	-	22.413	-	-	7.212	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*22.413*	-	-	*7.212*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5104 MK-54 MOD 0 Cost	**-**	**-**	***668.328***	**-**	**-**	***50.249***	**-**	**-**	***33.457***	**-**	**-**	***0.000***	**-**	**-**	***40.784***	**-**	**-**	***40.784***
Hardware - F5110 MK-54 MOD 1 HARDWARE Cost																		
Recurring Cost																		

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

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
2.1.1) MK-54 KITS - MOD 1(†)	521,727.27	110	57.390	615,733.33	30	18.472	-	-	-	-	-	0.000	622,633.00	30	18.679	622,633.00	30	18.679
2.1.2) DIMINISHING MANUFACTURING SOURCES (4)	-	-	0.800	-	-	0.744	-	-	1.000	-	-	0.000	-	-	2.180	-	-	2.180
2.1.3) MK-54 ENGINEERING SERVICES / ECPS FOR KITS (5)	-	-	10.314	-	-	3.369	-	-	6.445	-	-	0.000	-	-	9.976	-	-	9.976
2.1.4) MK-54 MOD 1 INSTALLATION (6)	-	-	-	-	-	1.908	-	-	2.376	-	-	0.000	-	-	1.320	-	-	1.320
Subtotal: Recurring Cost	-	-	*68.504*	-	-	*24.493*	-	-	*9.821*	-	-	*0.000*	-	-	*32.155*	-	-	*32.155*
Non Recurring Cost																		
2.2.1) MK-54 NRE	-	-	10.314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*10.314*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5110 MK-54 MOD 1 HARDWARE Cost	**-**	**-**	***78.818***	**-**	**-**	***24.493***	**-**	**-**	***9.821***	**-**	**-**	***0.000***	**-**	**-**	***32.155***	**-**	**-**	***32.155***
Hardware - F5105 FLEET EXERCISE SYSTEMS Cost																		
Recurring Cost																		
4.1.1) FLEET EXERCISE SYSTEMS(†)	196,547.62	42	8.255	91,666.67	2	0.183	93,333.33	6	0.560	-	-	0.000	95,000.00	6	0.570	95,000.00	6	0.570
Subtotal: Recurring Cost	-	-	*8.255*	-	-	*0.183*	-	-	*0.560*	-	-	*0.000*	-	-	*0.570*	-	-	*0.570*
Subtotal: Hardware - F5105 FLEET EXERCISE SYSTEMS Cost	**-**	**-**	***8.255***	**-**	**-**	***0.183***	**-**	**-**	***0.560***	**-**	**-**	***0.000***	**-**	**-**	***0.570***	**-**	**-**	***0.570***
Hardware - F5107 MK-54/ VLA KITS Cost																		
Recurring Cost																		
5.1.1) MK-54 / VLA KITS(†)	99,680.18	222	22.129	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.1.2) MK-54 / VLA HARDWARE OBSOLESCENCE	-	-	1.343	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.1.3) MK-54 / VLA INSTALLATION	-	-	11.852	-	-	1.456	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*35.324*	-	-	*1.456*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5107 MK-54/ VLA KITS Cost	**-**	**-**	***35.324***	**-**	**-**	***1.456***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - F5108 VLA COMPONENTS Cost																		
Recurring Cost																		
6.1.1) VLA COMPONENT SETS	2,255K	22	49.606	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.1.2) VLA ENGINEERING SVCS / ECPS	-	-	3.889	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.1.3) VLA CANISTERS	216,636.36	22	4.766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.1.4) VLA AUR BUILDUP / INSTALLATION	-	-	1.527	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*59.788*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5108 VLA COMPONENTS Cost	**-**	**-**	***59.788***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - F5109 HAAWC Cost																		
Recurring Cost																		
7.1.1) HAAWC Kits(†) (7)	-	-	-	-	-	-	52,012.00	117	6.085	-	-	0.000	183,000.00	120	21.960	183,000.00	120	21.960
7.1.2) TM kits(†)	-	-	-	-	-	-	180,000.00	36	6.480	-	-	-	-	-	-	-	-	-
7.1.3) HAAWC Engineering Services/ ECPs	-	-	-	-	-	-	-	-	2.897	-	-	0.000	-	-	1.386	-	-	1.386
7.1.4) HAAWC ALA Containers & Flight Test Simulator (8)	-	-	-	-	-	-	-	-	0.294	-	-	0.000	-	-	0.672	-	-	0.672
7.1.5) HAAWC All Up Round Containers	-	-	-	-	-	-	-	-	2.625	-	-	0.000	-	-	0.558	-	-	0.558
7.1.6) DIMINISHING MANUFACTURING SOURCES	-	-	-	-	-	-	-	-	0.310	-	-	0.000	-	-	0.310	-	-	0.310
7.1.7) HAAWC IN-HOUSE PRODUCTION ENGINEERING SUPPORT	-	-	-	-	-	-	-	-	2.816	-	-	0.000	-	-	2.208	-	-	2.208
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*21.507*	-	-	*0.000*	-	-	*27.094*	-	-	*27.094*
Subtotal: Hardware - F5109 HAAWC Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***21.507***	**-**	**-**	***0.000***	**-**	**-**	***27.094***	**-**	**-**	***27.094***
Hardware - F5CA1 CONGRESSIONAL ADDS- TECHNOLOGY INSERTIONS Cost																		

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

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Non Recurring Cost																		
8.1.1) CONGRESSIONAL ADDS - TECHNOLOGY INSERTIONS	-	-	4.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*4.400*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5CA1 CONGRESSIONAL ADDS- TECHNOLOGY INSERTIONS Cost	**-**	**-**	***4.400***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - F5CA2 CONGRESSIONAL ADDS - TORPEDO TEST HARDWARE Cost																		
Non Recurring Cost																		
9.1.1) CONGRESSIONAL ADDS - TORPEDO TEST HARDWARE	-	-	1.600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*1.600*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5CA2 CONGRESSIONAL ADDS - TORPEDO TEST HARDWARE Cost	**-**	**-**	***1.600***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - F5CA3 CONGRESSIONAL ADD Cost																		
Non Recurring Cost																		
10.1.1) INTELLIGENT GRAPHICS TORPEDO TEST SET TROUBLESHOOTING MAINTENERS AID	-	-	4.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*4.000*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5CA3 CONGRESSIONAL ADD Cost	**-**	**-**	***4.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - F5CA4 CONGRESSIONAL ADDS Cost																		
Non Recurring Cost																		
11.1.1) LIGHTWEIGHT TORPEDO PSU TEST EQUIPMENT MODERNIZATION	-	-	3.840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Non Recurring Cost	-	-	*3.840*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - F5CA4 CONGRESSIONAL ADDS Cost	**-**	**-**	***3.840***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - F5003 SUPPORT EQUIPMENT Cost																		
12.1) SUPPORT EQUIPMENT	-	-	21.162	-	-	1.767	-	-	1.802	-	-	0.000	-	-	1.838	-	-	1.838
Subtotal: Support - F5003 SUPPORT EQUIPMENT Cost	**-**	**-**	***21.162***	**-**	**-**	***1.767***	**-**	**-**	***1.802***	**-**	**-**	***0.000***	**-**	**-**	***1.838***	**-**	**-**	***1.838***
Support - F5830 PRODUCTION ENGINEERING IN-HOUSE Cost																		
13.1) PRODUCTION ENGINEERING IN-HOUSE	-	-	97.067	-	-	7.342	-	-	7.383	-	-	0.000	-	-	7.531	-	-	7.531
Subtotal: Support - F5830 PRODUCTION ENGINEERING IN-HOUSE Cost	**-**	**-**	***97.067***	**-**	**-**	***7.342***	**-**	**-**	***7.383***	**-**	**-**	***0.000***	**-**	**-**	***7.531***	**-**	**-**	***7.531***
Support - F5840 QUALITY ASSURANCE Cost																		
14.1) QUALITY ASSURANCE	-	-	33.147	-	-	4.639	-	-	4.682	-	-	0.000	-	-	4.776	-	-	4.776
Subtotal: Support - F5840 QUALITY ASSURANCE Cost	**-**	**-**	***33.147***	**-**	**-**	***4.639***	**-**	**-**	***4.682***	**-**	**-**	***0.000***	**-**	**-**	***4.776***	**-**	**-**	***4.776***
Support - F5860 ACCEPT TEST & EVALUATION Cost																		
15.1) ACCEPT TEST & EVALUATION	-	-	62.007	-	-	3.891	-	-	3.920	-	-	0.000	-	-	3.998	-	-	3.998
Subtotal: Support - F5860 ACCEPT TEST & EVALUATION Cost	**-**	**-**	***62.007***	**-**	**-**	***3.891***	**-**	**-**	***3.920***	**-**	**-**	***0.000***	**-**	**-**	***3.998***	**-**	**-**	***3.998***
Support - F5900 PRODUCTION ENGINEERING CONTRACTOR Cost																		
16.1) PRODUCTION ENGINEERING CONTRACTOR	-	-	10.887	-	-	0.679	-	-	0.693	-	-	0.000	-	-	0.707	-	-	0.707
Subtotal: Support - F5900 PRODUCTION ENGINEERING CONTRACTOR Cost	**-**	**-**	***10.887***	**-**	**-**	***0.679***	**-**	**-**	***0.693***	**-**	**-**	***0.000***	**-**	**-**	***0.707***	**-**	**-**	***0.707***
Support - WAXXX ACQUISITION WORKFORCE FUNDING - 2009 Cost																		

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Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
17.1) ACQUISITION WORKFORCE FUNDING - 2009	-	-	0.287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - WAXXX ACQUISITION WORKFORCE FUNDING - 2009 Cost	**-**	**-**	***0.287***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - F5103 FIELD SUPPORT OPERATIONS Cost																		
18.1) MK-46 MOD 5A (SW) SLEP KITS	-	-	1.561	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - F5103 FIELD SUPPORT OPERATIONS Cost	**-**	**-**	***1.561***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - F5106 MK-54 PLATFORM INTEGRATION Cost																		
19.1) MK-54 PLATFORM INTEGRATION	-	-	0.697	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - F5106 MK-54 PLATFORM INTEGRATION Cost	**-**	**-**	***0.697***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**1,676K**	**651**	**1,091.168**	**-**	**-**	**94.699**	**-**	**-**	**83.825**	**-**	**-**	**0.000**	**-**	**-**	**119.453**	**-**	**-**	**119.453**

(†) indicates the presence of a P-5a

Footnotes:

(1) Funding increases from FY 2019 to FY 2020 due to unit cost increases. Unit cost increase is due to lower quantity procured and actual stair step pricing in the contract.

(2) Funding increases from FY 2019 to FY 2020 due to a new subcontractor for array material and anticipated increased effort to support ECPs.

(3) ITEM 1.1.3 - COST CODE F5104 MK 54 MOD 0 Kit Installation: The program will install procured kits delivered per the P-21 exhibit. Installation occurs one month after delivery and the installation is budgeted for in the year the installation is planned to occur. In FY 20, 364 Kits are planned for installation an increase from the original 120 due to subcontractor bankruptcy and requalification efforts causing delivery delays.

(4) DMS material funds the procurement of obsolete commercial electronic material to avoid redesign of the MK54 MOD 1 torpedo. The MK54 MOD 1 Signal Processor and Data Processor are currently obsolete. The commercial manufacturer of these parts allows the MK54 Mod 1 program to make future purchases of these obsolete electronic component parts on the computer boards as they become obsolete. The increase in MK54 Mod 1 DMS funding from FY19 to FY20 is to support an increase in the amount of amount of electronic parts needed for end of life of type buys in FY20 to support the low rate initial production (LRIP) period and the first year of full rate production (FRP). This funding is to allow a stable baseline for software development and operational testing while allowing time to redesign the MK54 MOD 1 torpedo.

(5) - COST CODE F5110 ITEM 2.1.3 MK-54 ENGINEERING SERVICES / ECPS FOR KITS:Increased in FY 2020 due to the need to redesign the Torpedo electronics which are obsolete. The redesign will include new Commercial Off the Shelf (COTS) processors which increase the ability to continue software improvements to the weapon due to faster processors and improved communication protocols. The funding in FY20 will be used to complete design work and procure proof of design units to test the design and perform software integration. The redesign is necessary because electronic parts from the original design that started in FY06 are no longer available to make the Torpedo. Bridge buys of available electronic parts have been executed to support production for FY18-21. The redesign started in FY19 and

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continue through FY22 until a new design for the electronics is available and qualified. Production will stop in FY22 unless the redesign is funded, which will significantly impact the small business workforce producing the MK54 MOD 1 sonar section.

(6) ITEM 2.1.4 - COST CODE F5110 MK 54 MOD 1 INSTALLATION: Funding provides for government installation of the MK54 Mod 1 kits and Afterbodies into All Up Rounds(AUR) as shown on the P-21. Installation occurs one month after delivery and the installation is budgeted for in the year the installation is planned to occur.

(7) COST CODE F5109 ITEM 7.1.1 HAAWC: Funding under this cost code provides for the procurement of MK54 High Altitude ASW Weapon Capability. Unit cost in FY20 reflects projected costs under new LRIP contract, which is higher than FY19 LRIP unit cost under the development contract, which was awarded and prices established in 2013 before actual production costs were understood.

(8) COST CODE F5109 ITEM 7.1.4 HAAWC ALA Containers & Flight Test Simulator: Funding under this cost code provides for the procurement of HAAWC Air Launched Accessory Containers from the prime contract. Unit cost in FY20 reflects new projected costs under a new sole source LRIP/Production contract, which is higher than FY19 LRIP unit cost under the development contract. The development contract was awarded and ALA Container unit prices were established in 2013 before actual production costs were understood. The quantity of HAAWC ALA containers also increases from Quantity 117 in FY19 to Quantity 120 in FY20 which also contributes to this increase.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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
1.1.1) MK-54 KITS - MOD 0(†)		2013	RAYTHEON/NORTHROP GRUMMAN / PORTSMOUTH, RHODE ISLAND/ANNAPOLIS, MD	C / FFP	NAVSEA	Sep 2013	Jul 2018	150	311,000.00	Y		
1.1.1) MK-54 KITS - MOD 0(†)		2014	RAYTHEON/NORTHROP GRUMMAN / PORTSMOUTH, RHODE ISLAND/ANNAPOLIS, MD	C / FFP	NAVSEA	Aug 2014	Sep 2019	214	256,532.71	Y		
1.1.1) MK-54 KITS - MOD 0(†)		2015	RAYTHEON/NORTHROP GRUMMAN / PORTSMOUTH, RHODE ISLAND/ANNAPOLIS,MD	C / FFP	NAVSEA	Aug 2015	Apr 2020	100	325,000.00	Y		
1.1.1) MK-54 KITS - MOD 0(†)		2016	RAYTHEON/NORTHROP GRUMMAN. / PORTSMOUTH, RHODE ISLAND/ANNAPOLIS, MD	C / FFP	NAVSEA	Aug 2016	Jul 2020	78	292,367.00	Y		
1.1.1) MK-54 KITS - MOD 0(†)		2017	RAYTHEON/NORTHROP GRUMMAN. / PORTSMOUTH, RHODE ISLAND/ANNAPOLIS, MD	C / FFP	NAVSEA	Aug 2017	Oct 2020	116	304,732.76	Y		
1.1.1) MK-54 KITS - MOD 0(†)		2018	RAYTHEON /ULTRA / PORTSMOUTH, RHODE ISLAND / TBD	C / FFP	NAVSEA	Aug 2018	Feb 2021	104	335,625.00	Y		
1.1.1) MK-54 KITS - MOD 0(†)		2019	RAYTHEON /ULTRA / PORTSMOUTH, RHODE ISLAND / TBD	C / FFP	NAVSEA	Jul 2019	Jul 2021	66	371,969.70	Y		
1.1.1) MK-54 KITS - MOD 0(†)	✓	2020	RAYTHEON /ULTRA / PORTSMOUTH, RHODE ISLAND / TBD	C / FFP	NAVSEA	Jul 2020	Jul 2022	42	377,119.00	Y		
2.1.1) MK-54 KITS - MOD 1(†)		2014	PROGENY/RAYTHEON - FY14 / MANASSAS VA/PORTSMOUTH, RI	SS / FFP	NAVSEA	Jul 2016	Dec 2017	40	510,000.00	Y		Jun 2014
2.1.1) MK-54 KITS - MOD 1(†)		2016	PROGENY / RAYTHEON - FY16 / MANASSAS VA /PORTSMOUTH,RI	SS / FFP	NAVSEA	Jul 2016	Oct 2018	40	525,000.00	Y		
2.1.1) MK-54 KITS - MOD 1(†)		2017	PROGENY/RAYTHEON - FY17 / MANASSAS VA/PORTSMOUTH,RI	SS / FFP	NAVSEA	Aug 2018	Jan 2020	30	533,000.00	Y		
2.1.1) MK-54 KITS - MOD 1(†)		2018	PROGENY/RAYTHEON- FY18 / MANASSAS VA/PORTSMOUTH,RI	SS / FFP	NAVSEA	Aug 2018	Nov 2020	30	615,733.33	Y		
2.1.1) MK-54 KITS - MOD 1(†)	✓	2020	PROGENY/RAYTHEON - FY20 / MANASSAS VA/PORTSMOUTH, RI	SS / FFP	NAVSEA	Aug 2020	May 2022	30	622,633.00	Y		
4.1.1) FLEET EXERCISE SYSTEMS		2015	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC,KPT	Jan 2015	Jan 2016	6	88,000.00	Y		
4.1.1) FLEET EXERCISE SYSTEMS		2016	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC, KPT	Jan 2016	Jan 2017	6	89,000.00	Y		
4.1.1) FLEET EXERCISE SYSTEMS		2017	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC, KPT	Sep 2017	Sep 2018	6	90,000.00	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	P-1 Line Item Number / Title: 3215 / MK-54 Torpedo Mods	Item Number / Title [DODIC]: 1 / MK-54 Torpedo Mods

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.1.1) FLEET EXERCISE SYSTEMS		2018	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC, KPT	Sep 2018	Sep 2019	2	91,666.67	Y		
4.1.1) FLEET EXERCISE SYSTEMS		2019	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC, KPTNUWC, KPT	Sep 2019	Sep 2020	6	93,333.33	Y		
4.1.1) FLEET EXERCISE SYSTEMS	✓	2020	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC, KPT	Sep 2020	Sep 2021	6	95,000.00	Y		
5.1.1) MK-54 / VLA KITS		2016	LOCKHEED MARTIN / OWEGO NY	SS / FP	NAVSUP, WSS	Jul 2016	Nov 2017	32	48,968.75	Y		
5.1.1) MK-54 / VLA KITS		2017	LOCKHEED MARTIN / AKRON OH	SS / FFP	NAVSUP,WSS	Jul 2017	Nov 2018	40	49,750.00	Y		
7.1.1) HAAWC Kits(†)		2019	BOEING INC / ST LOUIS, MO	C / FFP	NAVSEA	Nov 2018	Nov 2019	117	52,012.00	Y		
7.1.1) HAAWC Kits(†)	✓	2020	BOEING INC / ST LOUIS, MO	SS / FFP	NAVSEA	Nov 2019	Nov 2020	120	183,000.00	Y		
7.1.2) TM kits		2019	BOEING INC / ST LOUIS, MO	C / FFP	NAVSEA	Nov 2019	Nov 2020	36	180,000.00	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods | **Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

Cost Elements (Units in Each)							Fiscal Year 2013												Fiscal Year 2014												BALANCE
										Calendar Year 2013												Calendar Year 2014									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2012	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) MK-54 KITS - MOD 0 (1)																															
Prior Years Deliveries: 713																															
	1	2013	NAVY	150 (9)	0	150												A -	-	-	-	-	-	-	-	-	-	-	-	-	150
	1	2014	NAVY	214	0	214																							A -	-	214
	2	2015	NAVY	100	0	100																									100
	4	2016	NAVY	78	0	78																									78
	4	2017	NAVY	116	0	116																									116
	3	2018	NAVY	104	0	104																									104
	3	2019	NAVY	66	0	66																									66
✓	3	2020	NAVY	42	0	42																									42
2.1.1) MK-54 KITS - MOD 1																															
	5	2014	NAVY	40	0	40																									40
	6	2016	NAVY	40	0	40																									40
	7	2017	NAVY	30	0	30																									30
	8	2018	NAVY	30	0	30																									30
✓	9	2020	NAVY	30	0	30																									30
7.1.1) HAAWC Kits (7)																															
	10	2019	NAVY	117	0	117																									117
✓	10	2020	NAVY	120	0	120																									120
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods | **Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
							Calendar Year 2015												Calendar Year 2016												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	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) MK-54 KITS - MOD 0 (1)																															
Prior Years Deliveries: 713																															
	1	2013	NAVY	150 (9)	0	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150
	1	2014	NAVY	214	0	214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214
	2	2015	NAVY	100	0	100											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	100
	4	2016	NAVY	78	0	78																							A -	-	78
	4	2017	NAVY	116	0	116																									116
	3	2018	NAVY	104	0	104																									104
	3	2019	NAVY	66	0	66																									66
✓	3	2020	NAVY	42	0	42																									42
2.1.1) MK-54 KITS - MOD 1																															
	5	2014	NAVY	40	0	40																						A -	-	-	40
	6	2016	NAVY	40	0	40																						A -	-	-	40
	7	2017	NAVY	30	0	30																									30
	8	2018	NAVY	30	0	30																									30
✓	9	2020	NAVY	30	0	30																									30
7.1.1) HAAWC Kits (7)																															
	10	2019	NAVY	117	0	117																									117
✓	10	2020	NAVY	120	0	120																									120
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods | **Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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) MK-54 KITS - MOD 0 (1)																															
Prior Years Deliveries: 713																															
	1	2013	NAVY	150 (9)	0	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	29	1	89
	1	2014	NAVY	214	0	214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214
	2	2015	NAVY	100	0	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
	4	2016	NAVY	78	0	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78
	4	2017	NAVY	116	0	116											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	116
	3	2018	NAVY	104	0	104																							A -	-	104
	3	2019	NAVY	66	0	66																									66
✓	3	2020	NAVY	42	0	42																									42
2.1.1) MK-54 KITS - MOD 1																															
	5	2014	NAVY	40	0	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	0
	6	2016	NAVY	40	0	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
	7	2017	NAVY	30	0	30																							A -	-	30
	8	2018	NAVY	30	0	30																							A -	-	30
✓	9	2020	NAVY	30	0	30																									30
7.1.1) HAAWC Kits (7)																															
	10	2019	NAVY	117	0	117																									117
✓	10	2020	NAVY	120	0	120																									120
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods | **Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) MK-54 KITS - MOD 0 (1)																															
Prior Years Deliveries: 713																															
	1	2013	NAVY	150 (9)	61	89	9	20	21	13	13	13																			0
	1	2014	NAVY	214	0	214	-	-	-	-	-	-	-	-	-	-	-	30	30	30	31	31	31	31							0
	2	2015	NAVY	100	0	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	30	30	10			0
	4	2016	NAVY	78	0	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	30	28	0
	4	2017	NAVY	116	0	116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116
	3	2018	NAVY	104	0	104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	104
	3	2019	NAVY	66	0	66										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66
✓	3	2020	NAVY	42	0	42																						A -	-	-	42
2.1.1) MK-54 KITS - MOD 1																															
	5	2014	NAVY	40	40	0																									0
	6	2016	NAVY	40	0	40	3	3	3	3	4	4	4	4	4	4	4														0
	7	2017	NAVY	30	0	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3
	8	2018	NAVY	30	0	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
✓	9	2020	NAVY	30	0	30																							A -	-	30
7.1.1) HAAWC Kits (7)																															
	10	2019	NAVY	117	0	117		A -	-	-	-	-	-	-	-	-	-	-	-	7	11	11	11	11	11	11	11	11	11	11	0
✓	10	2020	NAVY	120	0	120														A -	-	-	-	-	-	-	-	-	-	-	120
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods | **Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

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) MK-54 KITS - MOD 0 (1)																															
Prior Years Deliveries: 713																															
	1	2013	NAVY	150 (9)	150	0																									0
	1	2014	NAVY	214	214	0																									0
	2	2015	NAVY	100	100	0																									0
	4	2016	NAVY	78	78	0																									0
	4	2017	NAVY	116	0	116	30	30	28	28																					0
	3	2018	NAVY	104	0	104	-	-	-	-	9	9	9	9	9	9	10	9	8	8	8	7									0
	3	2019	NAVY	66	0	66	-	-	-	-	-	-	-	-	-	4	4	5	5	6	6	6	6	6	6	6	6				0
✓	3	2020	NAVY	42	0	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	4	34
2.1.1) MK-54 KITS - MOD 1																															
	5	2014	NAVY	40	40	0																									0
	6	2016	NAVY	40	40	0																									0
	7	2017	NAVY	30	27	3	3																								0
	8	2018	NAVY	30	0	30	-	3	3	3	3	3	3	3	3	3	3														0
✓	9	2020	NAVY	30	0	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	15
7.1.1) HAAWC Kits (7)																															
	10	2019	NAVY	117	117	0																									0
✓	10	2020	NAVY	120	0	120	-	10	10	10	10	10	10	10	10	10	10	10	10												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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods | **Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

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) MK-54 KITS - MOD 0 (1)																															
Prior Years Deliveries: 713																															
	1	2013	NAVY	150 (9)	150	0																									0
	1	2014	NAVY	214	214	0																									0
	2	2015	NAVY	100	100	0																									0
	4	2016	NAVY	78	78	0																									0
	4	2017	NAVY	116	116	0																									0
	3	2018	NAVY	104	104	0																									0
	3	2019	NAVY	66	66	0																									0
✓	3	2020	NAVY	42	8	34	4	4	4	4	4	4	4	3	3																0
2.1.1) MK-54 KITS - MOD 1																															
	5	2014	NAVY	40	40	0																									0
	6	2016	NAVY	40	40	0																									0
	7	2017	NAVY	30	30	0																									0
	8	2018	NAVY	30	30	0																									0
✓	9	2020	NAVY	30	15	15	3	3	3	3	3																				0
7.1.1) HAAWC Kits (7)																															
	10	2019	NAVY	117	117	0																									0
✓	10	2020	NAVY	120	120	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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3215 / MK-54 Torpedo Mods	**Item Number / Title [DODIC]:** 1 / MK-54 Torpedo Mods

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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/NORTHROP GRUMMAN - PORTSMOUTH, RHODE ISLAND/ANNAPOLIS, MD	120	216	312	0	0	41	41	0	0	23	23
2	RAYTHEON/NORTHROP GRUMMAN - PORTSMOUTH, RHODE ISLAND/ANNAPOLIS,MD	120	216	312	0	0	0	0	0	0	24	24
3	RAYTHEON /ULTRA - PORTSMOUTH, RHODE ISLAND / TBD	120	216	312	0	0	21	21	0	0	24	24
4	RAYTHEON/NORTHROP GRUMMAN. - PORTSMOUTH, RHODE ISLAND/ANNAPOLIS, MD	120	216	312	0	0	28	28	0	0	24	24
5	PROGENY/RAYTHEON - FY14 - MANASSAS VA/ PORTSMOUTH, RI			TBD	0	0	17	17	0	0	17	17
6	PROGENY / RAYTHEON - FY16 - MANASSAS VA / PORTSMOUTH,RI			TBD	0	0	27	27	0	0	27	27
7	PROGENY/RAYTHEON - FY17 - MANASSAS VA/ PORTSMOUTH,RI			TBD	0	0	17	17	0	0	17	17
8	PROGENY/RAYTHEON- FY18 - MANASSAS VA/ PORTSMOUTH,RI			TBD	0	0	27	27	0	0	27	27
9	PROGENY/RAYTHEON - FY20 - MANASSAS VA/ PORTSMOUTH, RI			TBD	0	0	21	21	0	0	21	21
10	BOEING INC - ST LOUIS, MO			TBD	0	0	12	12	0	0	9	9

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(9) 41 kits delivered in FY17 before production delay with nose arrays. Remaining 109 nose arrays will be delivered July 2018 - Mar 2019

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	58	-	-	-	-	-	-	-	-	-	-	58
Gross/Weapon System Cost *($ in Millions)*	1,185.846	38.954	40.005	0.000	39.508	39.508	56.640	57.836	58.934	60.105	24.519	1,562.347
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,185.846	38.954	40.005	0.000	39.508	39.508	56.640	57.836	58.934	60.105	24.519	1,562.347
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,185.846**	**38.954**	**40.005**	**0.000**	**39.508**	**39.508**	**56.640**	**57.836**	**58.934**	**60.105**	**24.519**	**1,562.347**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	2.916	1.904	0.000	1.376	1.376	1.398	3.370	-	-	-	10.964
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	20,446K	-	-	-	-	-	-	-	-	-	-	26,937K

Description:

FY 2020 funding totals include $0.0M for Base and $39.508M for Overseas Contingency Operations (OCO); of which $39.508M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This line item procures MK 48 Mod 7 Common Broadband Advanced Sonar System (CBASS) kits for Heavyweight Torpedo upgrades.

The CBASS torpedo kit consists of three major components: Guidance & Control Box (GCB), a Broadband Sonar Analog Receiver (BSAR), and preamplifier. The GCB continued from Mods in production since FY 2002 and procurement of the BSAR began in FY 2004. The BSAR is a CBASS specific item, which consists of a preamplifier, receiver, and interfacing hardware that provides the capability to transmit and receive over a wide frequency band; taking advantage of broadband signal processing techniques. This provides for improvements in advanced threat countermeasures (CMs) capabilities.

[P5 / D1001 Hardware]: Funding under this cost code provides for the procurement of CBASS hardware kits from the contractor, Engineering Change Proposals (ECP), and Non-Recurring Engineering (NRE) to resolve production issues, including obsolescence. Engineering Services and Engineering Change Proposals (ECPs) pay for studies, plans, design changes, and implementation of design changes by the contractor; primarily due to obsolescence that occurs during the contract performance. Also included in this cost code is the cost of government installation of kits procured in prior years. The installation includes required upgrades to convert the MK 48 Mod 6 Torpedo into a MK 48 Mod 7 Torpedo. The pre-amp, guidance control box, EMI filter, and Broadband Sonar Analog Receiver (BSAR) are installed at the government Intermediate Maintenance Activity. The torpedo goes through a final integration test, is loaded with the operational software, and completes quality assurance checkout prior to issuing it as a warshot or exercise torpedo. Diminishing Manufacturing Sources (DMS) funds are provided to procure electronic parts, which are declared obsolete by the original equipment manufacturing. This is done to avoid the cost of an expensive redesign in the CBASS kit during execution of the production contract. The contractor will be required to procure, deliver, and store the MK 48 Mod 7 DMS material for these obsolete components. Non-Recurring Engineering (NRE) funds the procurement of Proof of Manufacturing (POM) units for government testing, first article testing, tooling and test equipment, procurement of technical data package updates, and start-up costs for the production contract.

[P5 / D1002 - MK48 TI-1 Hardware]: Program under this cost code provides for the procurement of Low Rate Initial Procurement (LRIP) for TI-1 Guidance & Control Section upgrade, which will supply a new Guidance and Control (G&C) including new Sonar Assembly (higher density array, transmitter, receiver), Guidance and Control Box (GCB), Tuning Box, and an Ethernet device switch. In addition to the G&C section, the TI-1 upgrade will also feature a new Warhead Electronics System (WES) to support improved fuzing and the Improved Post Launch Communications System (IPLCS), which will potentially replace the existing copper guidance wire with fiber optics. Improvements are needed in the presence of countermeasures, shallow water, low Doppler targets, fusing, Very Shallow Water (VSW), and Anti Surface

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Warfare (ASuW) performance. TI-1 upgrade allows full fleet introduction of the APB-6 and to meet requirements of MK 48 Improvements CDD (857-97-12). A new competitive TI-1 G&C contract will be awarded in FY2023.

[P5 / D1003 - Support and Ancillary Equipment]: Funding under this cost code provides procurement and maintenance of support and test equipment at Naval Undersea Warfare Centers (NUWC) Keyport and the contractor facility for assembly, testing, and integration.

[P5 / D1830 - Production Engineering (Contractor & In-House)]: Production Engineering (Contractor & In-House)]: Funding under this cost code provides for production tasks performed by NUWC NPT and KPT and includes review of contractor generated Engineering Change Proposals (ECP), review and resolution of contractor failures and proposed corrective action, configuration management activities, contractor monitoring, risk analysis, technical problem resolution, software engineering, safety, integrated logistics support, environmental engineering, and information systems. Funding maintains production specification in accordance with production processes, provides subject matter experts to support root cause analysis of failed contractor hardware, and monitor contractor defect reduction processes to ensure deficiencies are effectively addressed. Funding is also provided for program office acquisition support.

[P5 / D1840 - Quality Assurance]: Funding under this cost code provides for quality assurance (QA) tasks performed by NUWC DIV KPT and NPT including: QA review of the contractor and subcontractor's data, review of the documentation indicating conformity to product performance requirements, and review of objective quality evidence.

[P5 / D1860 - Acceptance T&E (Contractor & In-House)]: Funding under this cost code provides for Government production acceptance testing of contractor hardware.

[P5 / D1CA1 - Congressional Add - Obsolescence]: Funding under this cost code provides for production engineering tasks associated with MK-48 hardware obsolescence.

[P5 / D1CA2 - Congressional Add - Tech Insert]: Funding under this cost code provides for production engineering tasks associated with a technology refresh for the MK-48 sonar array and signal processor cards.

[P5 / D1CA3 - Congressional Add - ASW Enhancements]: Funding under this cost code provides for production engineering tasks associated with a technology refresh for the MK-48 sonar array.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / MK-48 Torpedo ADCAP Mods	P-5a, P-21			58 / 1,185.846	- / 38.954	- / 40.005	- / 0.000	- / 39.508	- / 39.508
P-40	**Total Gross/Weapon System Cost**				**58 / 1,185.846**	**- / 38.954**	**- / 40.005**	**- / 0.000**	**- / 39.508**	**- / 39.508**

*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:
FY20 Program Changes:

1.1.4 CBASS Installation: Funding in FY20 increased due to increase in number of government installations of CBASS kits. The program will install procured kits delivered per the P-21 exhibit. In FY20 110 kits are scheduled to be
installed.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	58	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,185.846	38.954	40.005	0.000	39.508	39.508
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,185.846	38.954	40.005	0.000	39.508	39.508
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,185.846**	**38.954**	**40.005**	**0.000**	**39.508**	**39.508**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	2.916	1.904	0.000	1.376	1.376
Gross/Weapon System Unit Cost *($ in Dollars)*	20,446K	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - D1001 Hardware Cost																		
Recurring Cost																		
1.1.1) ADCAP Mod Kits	-	-	228.988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) CBASS Kits(†) (1)	300,914.35	899	270.522	204,193.00	79	16.131	205,964.00	79	16.271	-	-	0.000	231,462.96	54	12.499	231,462.96	54	12.499
1.1.3) CBASS Engineering Services/ ECPs	-	-	27.624	-	-	5.329	-	-	5.404	-	-	0.000	-	-	5.065	-	-	5.065
1.1.4) CBASS Installation (2)	-	-	40.761	-	-	2.464	-	-	3.135	-	-	0.000	-	-	6.612	-	-	6.612
1.1.5) Diminishing Manufacturing Sources	-	-	0.907	-	-	0.415	-	-	0.200	-	-	0.000	-	-	0.200	-	-	0.200
Subtotal: Recurring Cost	-	-	*568.802*	-	-	*24.339*	-	-	*25.010*	-	-	*0.000*	-	-	*24.376*	-	-	*24.376*
Non Recurring Cost																		
1.2.1) CBASS NRE	-	-	50.497	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*50.497*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - D1001 Hardware Cost	**-**	**-**	***619.299***	**-**	**-**	***24.339***	**-**	**-**	***25.010***	**-**	**-**	***0.000***	**-**	**-**	***24.376***	**-**	**-**	***24.376***
Support - D1003 - Support and Ancillary Equipment Cost																		
3.1) Support & Ancillary Equipment	-	-	53.208	-	-	1.619	-	-	1.651	-	-	0.000	-	-	1.684	-	-	1.684

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	P-1 Line Item Number / Title: 3225 / MK-48 Torpedo ADCAP Mods	Item Number / Title [DODIC]: 1 / MK-48 Torpedo ADCAP Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - D1003 - Support and Ancillary Equipment Cost	**-**	**-**	***53.208***	**-**	**-**	***1.619***	**-**	**-**	***1.651***	**-**	**-**	***0.000***	**-**	**-**	***1.684***	**-**	**-**	***1.684***
Support - D1830 - Production Engineering (Contractor & In-House) Cost																		
4.1) Production Enginnering (Contractor & In-House)	-	-	285.663	-	-	7.337	-	-	7.571	-	-	0.000	-	-	7.569	-	-	7.569
Subtotal: Support - D1830 - Production Engineering (Contractor & In-House) Cost	**-**	**-**	***285.663***	**-**	**-**	***7.337***	**-**	**-**	***7.571***	**-**	**-**	***0.000***	**-**	**-**	***7.569***	**-**	**-**	***7.569***
Support - D1840 - Quality Assurance Cost																		
5.1) Quality Assurance (In-House)	-	-	22.951	-	-	2.832	-	-	2.889	-	-	0.000	-	-	2.944	-	-	2.944
Subtotal: Support - D1840 - Quality Assurance Cost	**-**	**-**	***22.951***	**-**	**-**	***2.832***	**-**	**-**	***2.889***	**-**	**-**	***0.000***	**-**	**-**	***2.944***	**-**	**-**	***2.944***
Support - D1860 - Acceptance T&E (Contractor & In-House) Cost																		
6.1) Acceptance T&E (Contractor & In-House)	-	-	185.625	-	-	2.827	-	-	2.884	-	-	0.000	-	-	2.935	-	-	2.935
Subtotal: Support - D1860 - Acceptance T&E (Contractor & In-House) Cost	**-**	**-**	***185.625***	**-**	**-**	***2.827***	**-**	**-**	***2.884***	**-**	**-**	***0.000***	**-**	**-**	***2.935***	**-**	**-**	***2.935***
Support - D1CA1 - Congressional Add - Obsolescence Cost																		
7.1) Congressional Add - Obsolescence	-	-	10.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - D1CA1 - Congressional Add - Obsolescence Cost	**-**	**-**	***10.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - D1CA2 - Congressional Add - Tech Insert Cost																		
8.1) Congressional Add - Tech Insertion	-	-	2.700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - D1CA2 - Congressional Add - Tech Insert Cost	**-**	**-**	***2.700***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - D1CA3 - Congressional Add - ASW Enhancements Cost																		
9.1) Congressional Add - ASW Enhancements	-	-	6.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - D1CA3 - Congressional Add - ASW Enhancements Cost	**-**	**-**	***6.400***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**20,446K**	**58**	**1,185.846**	**-**	**-**	**38.954**	**-**	**-**	**40.005**	**-**	**-**	**0.000**	**-**	**-**	**39.508**	**-**	**-**	**39.508**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(†) indicates the presence of a P-5a

Footnotes:

(1) From FY 2019 to FY 2020, the unit cost increases while the quantity decreases because unit cost is based on actual stair step pricing in the contract. The reduction of units from FY19 to FY20 resulted in a higher step price for CBASS Kits on the contract.

(2) FY20: CBASS installation cost in FY 2020 per installations of CBASS kits procured and delivered from prior years as shown in the P-21.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	P-1 Line Item Number / Title: 3225 / MK-48 Torpedo ADCAP Mods	Item Number / Title [DODIC]: 1 / MK-48 Torpedo ADCAP Mods

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) CBASS Kits(†)		2012	LOCKHEED MARTIN/ SIPPICAN / Marion, MA	C / FPIF	NAVSEA	Aug 2012	Oct 2015	58	237,103.45	Y		
1.1.2) CBASS Kits(†)		2013	LOCKHEED MARTIN/ SIPPICAN / Marion, MA	C / FPIF	NAVSEA	Aug 2013	Mar 2016	114	214,026.32	Y		
1.1.2) CBASS Kits(†)		2014	LOCKHEED MARTIN/SIPPICAN FY14 Option / Marion, MA	C / FPIF	NAVSEA	Aug 2014	May 2017	108	226,351.85	Y		
1.1.2) CBASS Kits(†)		2015	LOCKHEED MARTIN/SIPPICAN FY15 Option / Marion, MA	C / FPIF	NAVSEA	Sep 2015	Oct 2017	44	290,496.00	Y		
1.1.2) CBASS Kits(†)		2016 (3)	LOCKHEED MARTIN/ SIPPICAN FY16 (4) / Marion, MA	C / FFP	NAVSEA	May 2016	May 2019	81	241,517.00	Y		
1.1.2) CBASS Kits(†)		2017	LOCKHEED MARTIN/SIPPICAN FY17 Option (5) / Marion, MA	C / FFP	NAVSEA	Sep 2017	May 2020	75	214,075.00	Y		
1.1.2) CBASS Kits(†)		2018	LOCKHEED MARTIN/SIPPICAN FY18 Option (6) / Marion, MA	C / FFP	NAVSEA	Aug 2018	Sep 2020	79	204,193.00	Y		
1.1.2) CBASS Kits(†)		2019	LOCKHEED MARTIN/SIPPICAN FY19 Option (7) / Marion, MA	C / FFP	NAVSEA	May 2019	Jan 2021	79	205,964.00	Y		
1.1.2) CBASS Kits(†)	✓	2020 (8)	LOCKHEED MARTIN/SIPPICAN FY20 Option (9) / Marion, MA	C / FFP	NAVSEA	May 2020	Nov 2021	54	231,462.96	Y		

(†) indicates the presence of a P-21

Footnotes:

(3) New competitive contract award in FY 2016. Longer lead time to delivery of Proof of Manufacturing (POM) units.

(4) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.

(5) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.

(6) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.

(7) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.

(8) Unit cost is based on the contract costs. Unit cost is determined by quantity planned for order. All the production contracts have stair step pricing, so as quantity increases and crosses a stair step, the price steps down. In FY20 the unit cost for 54 is in a lower cost step ladder than what we are predicting in FY21 and FY22. FY21 is also the first year of a new competitive contract award which is why we have NRE and a lower quantity. FY22 is the last year we need to procure MOD 7 CBASS before we transition to what will be the MOD 8. Another factor added to the unit cost is Production Support Material (PSM). That cost gets prorated into the unit cost, so that why in FY21 and FY22 even though they are in the same stepladder, the cost is more in FY21 because there are less units to prorate the PSM over.

(9) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

Cost Elements (Units in Each)							Fiscal Year 2012												Fiscal Year 2013												BALANCE
							Calendar Year 2012												Calendar Year 2013												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) CBASS Kits [1]																															
Prior Years Deliveries: 419																															
	1	2012	NAVY	58	0	58											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	58
	1	2013	NAVY	114	0	114																							A -	-	114
	2	2014	NAVY	108	0	108																									108
	3	2015	NAVY	44	0	44																									44
	4	2016	NAVY	81	0	81																									81
	5	2017	NAVY	75	0	75																									75
	6	2018	NAVY	79	0	79																									79
	7	2019	NAVY	79	0	79																									79
✓	8	2020	NAVY	54	0	54																									54
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

Cost Elements (Units in Each)							Fiscal Year 2014												Fiscal Year 2015												BALANCE
										Calendar Year 2014												Calendar Year 2015									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) CBASS Kits [1]																															
Prior Years Deliveries: 419																															
	1	2012	NAVY	58	0	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
	1	2013	NAVY	114	0	114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114
	2	2014	NAVY	108	0	108											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	108
	3	2015	NAVY	44	0	44																								A -	44
	4	2016	NAVY	81	0	81																									81
	5	2017	NAVY	75	0	75																									75
	6	2018	NAVY	79	0	79																									79
	7	2019	NAVY	79	0	79																									79
✓	8	2020	NAVY	54	0	54																									54
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
							Calendar Year 2016												Calendar Year 2017												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) CBASS Kits (1)																															
Prior Years Deliveries: 419																															
	1	2012	NAVY	58	0	58	5	14	8	13	18																				0
	1	2013	NAVY	114	0	114	-	-	-	-	-	6	6	8	8	14	3	3	8	10	10	18	20								0
	2	2014	NAVY	108	0	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	23	20	14	14	17
	3	2015	NAVY	44	0	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
	4	2016	NAVY	81	0	81								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81
	5	2017	NAVY	75	0	75																								A -	75
	6	2018	NAVY	79	0	79																									79
	7	2019	NAVY	79	0	79																									79
✓	8	2020	NAVY	54	0	54																									54
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2 | **P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods | **Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

Cost Elements (Units in Each)							Fiscal Year 2018												Fiscal Year 2019												BALANCE
							Calendar Year 2018												Calendar Year 2019												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) CBASS Kits [1]																															
Prior Years Deliveries: 419																															
	1	2012	NAVY	58	58	0																									0
	1	2013	NAVY	114	114	0																									0
	2	2014	NAVY	108	91	17	17																								0
	3	2015	NAVY	44	0	44	2	2	17	17	6																				0
	4	2016	NAVY	81	0	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	10	31
	5	2017	NAVY	75	0	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
	6	2018	NAVY	79	0	79											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	79
	7	2019	NAVY	79	0	79																				A -	-	-	-	-	79
✓	8	2020	NAVY	54	0	54																									54
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
							Calendar Year 2020															Calendar Year 2021									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) CBASS Kits [1]																															
Prior Years Deliveries: 419																															
	1	2012	NAVY	58	58	0																									0
	1	2013	NAVY	114	114	0																									0
	2	2014	NAVY	108	108	0																									0
	3	2015	NAVY	44	44	0																									0
	4	2016	NAVY	81	50	31	10	10	11																						0
	5	2017	NAVY	75	0	75	-	-	-	-	-	-	-	13	13	13	13	13	10												0
	6	2018	NAVY	79	0	79	-	-	-	-	-	-	-	-	-	-	-	14	14	14	14	14	9								0
	7	2019	NAVY	79	0	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	8	8	8	8	8	8	8	9
✓	8	2020	NAVY	54	0	54								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

Cost Elements (Units in Each)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
							Calendar Year 2022												Calendar Year 2023												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) CBASS Kits [1]																															
Prior Years Deliveries: 419																															
	1	2012	NAVY	58	58	0																									0
	1	2013	NAVY	114	114	0																									0
	2	2014	NAVY	108	108	0																									0
	3	2015	NAVY	44	44	0																									0
	4	2016	NAVY	81	81	0																									0
	5	2017	NAVY	75	75	0																									0
	6	2018	NAVY	79	79	0																									0
	7	2019	NAVY	79	70	9	9																								0
✓	8	2020	NAVY	54	0	54	-	6	6	6	6	5	5	5	5	5	5														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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3225 / MK-48 Torpedo ADCAP Mods	**Item Number / Title [DODIC]:** 1 / MK-48 Torpedo ADCAP Mods

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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/ SIPPICAN - Marion, MA	89	148	240	0	3	25	28	0	3	23	26
2	LOCKHEED MARTIN/ SIPPICAN FY14 Option - Marion, MA	89	148	240	0	0	0	0	0	0	20	20
3	LOCKHEED MARTIN/ SIPPICAN FY15 Option - Marion, MA	89	148	240	0	0	0	0	0	0	25	25
4	LOCKHEED MARTIN/ SIPPICAN FY16 (4) - Marion, MA			90	0	0	36	36	0	0	0	0
5	LOCKHEED MARTIN/ SIPPICAN FY17 Option (5) - Marion, MA			90	0	0	32	32	0	0	0	0
6	LOCKHEED MARTIN/ SIPPICAN FY18 Option (6) - Marion, MA			90	0	0	26	26	0	0	25	25
7	LOCKHEED MARTIN/ SIPPICAN FY19 Option (7) - Marion, MA			100	0	0	26	26	0	0	20	20
8	LOCKHEED MARTIN/ SIPPICAN FY20 Option (9) - Marion, MA			100	0	0	18	18	0	0	18	18

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(4) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.
(5) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.
(6) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.
(7) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.
(9) MSR lowest step-ladder Qty is 10; EOQ has not yet been determined by the contractor.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3231 / Quickstrike Mine

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	62.883	6.337	9.758	0.000	5.183	5.183	5.289	8.585	8.793	24.023	-	130.851
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	62.883	6.337	9.758	0.000	5.183	5.183	5.289	8.585	8.793	24.023	-	130.851
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**62.883**	**6.337**	**9.758**	**0.000**	**5.183**	**5.183**	**5.289**	**8.585**	**8.793**	**24.023**	**-**	**130.851**
(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:

FY 2020 funding totals include $0.0M for Base and $5.183M for Overseas Contingency Operations (OCO); of which $5.183M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Quickstrike Mine program provides Naval mines for use as anti-ship or anti-submarine subsurface weapons. The Naval mining capability consists of the QUICKSTRIKE (QS) mine, the Submarine Launched Mobile Mine (SLMM), and the modified Clandestine Delivered Mine (CDM).

The Quickstrike is a family of shallow water, aircraft laid mines used primarily against surface and subsurface craft. The QUICKSTRIKE family of delivered mines has 3 variants based on size - the MK 62, MK 63, and MK 65. The MK 62 and MK 63 (500 lb. and 1000 lb.) QS are created by adding mine hardware to the MK 82 and MK 83 general purpose bomb (respectively) to form a mine. The MK 65 (2000 lb.) QS consists entirely of hardware designed for use as a mine. The Mod 0, 1, and 3 variants utilize various Target Detection Devices (TDD). The QS Mod 3 utilizes a newly developed TDD MK 71, a software-programmable device capable of being programmed to optimize detection of new threats. For the QUICKSTRIKE MK 62 and 63, the QS Mod 3 Kit consists of the TDD (including the service and dummy MK 71), Safe/Arming (S&A) devices (including the service MK 75, practice MK 81, and dummy MK 84), battery (MK 176), TDD Adapter Ring MK 163, and miscellaneous hardware. For the QUICKSTRIKE MK 65, the Mod 3 Kit consists of the TDD (including the service and dummy MK 71), the existing S&A devices (including the service MK 45 and practice and dummy S&A devices), the existing batteries MK 131 or 132, TDD Adapter MK 157, and miscellaneous hardware. Additional support hardware for the QS MK 62/63/65 Mod 3 includes Test Set MK 650 and Programmer MK 11. The MK 67 SLMM is the only submarine launched variant. The CDM uses existing SLMM components to provide a mine with potential to be delivered by unmanned maritime platforms.

Starting in FY 2024, procurement of primary hardware and support equipment for encapsulating effectors commences for the Hammerhead program. Primary hardware includes canisters and anchors for each mine as well as onboard sensing and processing. The Hammerhead program uses a weapon which is self-contained and is released when a target is detected, using mobility to engage the target. The system uses modern sensing and processing technology to enable accurate targeting at increased range. It will provide maritime mining capability in deeper water depths compared to existing bottom mines, and enable a wide area of coverage per each weapon.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 2: Mod of Torpedoes and Related Equip	**P-1 Line Item Number / Title:** 3231 / Quickstrike Mine

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Quickstrike Mine				- / 62.883	- / 6.337	- / 9.758	- / 0.000	- / 5.183	- / 5.183
P-40	**Total Gross/Weapon System Cost**				**- / 62.883**	**- / 6.337**	**- / 9.758**	**- / 0.000**	**- / 5.183**	**- / 5.183**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 provides funding for the baseline program supporting mining capabilities for the US Navy, which are deployed by multiple aircraft vehicles, are submarine launched, or delivered by unmanned maritime platforms.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	P-1 Line Item Number / Title: 3231 / Quickstrike Mine	Item Number / Title [DODIC]: 1 / Quickstrike Mine
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	62.883	6.337	9.758	0.000	5.183	5.183
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	62.883	6.337	9.758	0.000	5.183	5.183
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**62.883**	**6.337**	**9.758**	**0.000**	**5.183**	**5.183**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) TDD MK-71	-	-	26.181	-	-	2.159	-	-	1.923	-	-	0.000	-	-	1.763	-	-	1.763
1.1.2) MK-65 Mod Kit	-	-	2.870	-	-	0.506	-	-	0.456	-	-	0.000	-	-	0.466	-	-	0.466
1.1.3) MK-62/63 Mod Kit	-	-	10.172	-	-	2.144	-	-	3.772	-	-	0.000	-	-	1.810	-	-	1.810
1.1.4) Support Equipment	-	-	5.523	-	-	0.330	-	-	0.352	-	-	0.000	-	-	0.359	-	-	0.359
1.1.5) Clandestine Delivered Mine (CDM)	-	-	2.000	-	-	-	-	-	2.538	-	-	-	-	-	-	-	-	-
1.1.6) Production ECP (HW/SW)	-	-	1.602	-	-	0.084	-	-	0.084	-	-	0.000	-	-	0.086	-	-	0.086
1.1.7) Data Recorder	-	-	0.879	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1.8) SLMM	-	-	1.850	-	-	0.337	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*51.077*	-	-	*5.560*	-	-	*9.125*	-	-	*0.000*	-	-	*4.484*	-	-	*4.484*
Subtotal: Hardware Cost	**-**	**-**	***51.077***	**-**	**-**	***5.560***	**-**	**-**	***9.125***	**-**	**-**	***0.000***	**-**	**-**	***4.484***	**-**	**-**	***4.484***
Support Cost																		
2.1) Production Engineering	-	-	11.216	-	-	0.660	-	-	0.516	-	-	0.000	-	-	0.580	-	-	0.580
2.2) Integrated Logistics Support	-	-	0.590	-	-	0.117	-	-	0.117	-	-	0.000	-	-	0.119	-	-	0.119
Subtotal: Support Cost	**-**	**-**	***11.806***	**-**	**-**	***0.777***	**-**	**-**	***0.633***	**-**	**-**	***0.000***	**-**	**-**	***0.699***	**-**	**-**	***0.699***
Gross/Weapon System Cost	**-**	**-**	**62.883**	**-**	**-**	**6.337**	**-**	**-**	**9.758**	**-**	**-**	**0.000**	**-**	**-**	**5.183**	**-**	**-**	**5.183**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 2	**P-1 Line Item Number / Title:** 3231 / Quickstrike Mine	**Item Number / Title [DODIC]:** 1 / Quickstrike Mine
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 3: Support Equipment	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	519.567	67.744	78.371	0.000	79.028	79.028	79.912	81.976	84.650	86.335	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	519.567	67.744	78.371	0.000	79.028	79.028	79.912	81.976	84.650	86.335	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**519.567**	**67.744**	**78.371**	**0.000**	**79.028**	**79.028**	**79.912**	**81.976**	**84.650**	**86.335**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	1.064	-	-	-	-	-	-	-	-	-	1.064
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $79.028M for Overseas Contingency Operations (OCO); of which $79.028M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Torpedo Support Equipment account procures various 4T and associated torpedo components required to ready weapons for Surface Ships, Submarines, Fixed Wing, and Rotary Wing to achieve and maintain a readiness posture sufficient to provide Anti-Submarine Warfare (ASW) and Anti-Surface Warfare (ASUW) readiness. The objective of this line is to provide the fleet with exercise weapons for conducting training maneuvers, which involves firing the torpedoes and maintaining warshot inventories in an operational ready-for-issue (RFI) status in support of combat ready deployment by ASW forces. After a torpedo is fired during a training exercise, it is recovered and all expendable components such as batteries, cables, and igniters (as well as various accessories required for air-launched torpedoes) must be replaced. These items, as well as components such as exercise heads, fuel tanks, and exhaust valves may be used more than one time, but they are worn out or lost in service and are procured each fiscal year in quantities dependent upon the fleet training requirements and tempo of operations. The torpedoes requiring support are the MK-46 Mod 5A(SW); MK-48 Mods 6 (legacy and ACOT) and 7; and MK-54.

[P5 / F8001 - LWT SUPPORT EQUIPMENT]: LIGHTWEIGHT (LWT) Support Equipment procures 4T components to support: (1) Exercise torpedo builds for Fleet Proficiency Surface Command Course and Tactical Development firings; (2) Warshot torpedo maintenance to sustain the fleet with an inventory of RFI warshot torpedoes as they come due for maintenance; (3) Assembly of new production MK-54 Warshots (4) Vertical Launch Anti-Submarine Rocket (ASROC) (VLA) Warshot and Exercise missile assemblies; and (5) Various air launch frame assemblies to support Fleet loadout. LWT 4T Components include the following: seawater batteries, pressure cylinders, thermal batteries, fuel shutoff valves, gas generator assemblies, igniters, containers, lanyard start assemblies, electrical initiators, suspension bands, VLA assembly kits, and propeller baffles.

[P5 / F8002 LIGHTWEIGHT OTHER EQUIPMENT INVESTMENT]: Procures, installs, and supports Engineering Change Proposal/Ordnance Alteration (ECP/ORDALT) material required for support and test equipment and to retrofit torpedoes and 4T components to the latest RFI configuration.

[P5 / F8830 LIGHTWEIGHT PRODUCTION ENGINEERING - IN HOUSE]: Provides for production support services at Naval Undersea Warfare Center (NUWC) Divisions Keyport/Newport (KPT/NPT) including program planning, funds management, budgeting, data management, acquisition engineering, software management, Integrated Logistiscs Support (ILS) and Government-Furnished Equipment (GFE) management, training equipment and configuration management.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 3: Support Equipment	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P5 / F8840 - LIGHTWEIGHT QUALITY ASSURANCE]: Provides material costs associated with failure analysis and site investigations for torpedo system component failures, product quality assurance (QA), and critical unique firing tests.

[P5 / F8860 - LIGHTWEIGHT ACCEPTANCE TEST AND EVALUATION]: Provides support for acceptance testing of LWT 4T components.

[P5 / F8900 - LIGHTWEIGHT PRODUCTION ENGINEERING - CONTRACTOR]: Provides for production support services including program planning, funds management, budgeting, and data management.

[P5 - 2 / F8003 LIGHTWEIGHT RECOVERABLE EXERCISE TORPEDO (REXTORP)]: Provides for the procurement of MK-54 REXTORPs. REXTORPs provide a reusable exercise inert torpedo shape for fixed wing, rotary, and surface launched platforms in support of Fleet ASW training and readiness.

[P5 - 3 / F8100 - HEAVYWEIGHT EXERCISE AND EXPENDABLES AND COMPONENT REPLACEMENT]: Procures 4T components to support: (1) exercise torpedo builds for fleet proficiency in the submarine and surface command course and tactical development firings; (2) warshot torpedo maintenance to sustain the fleet with an inventory of RFI warshot torpedoes as they come due for maintenance; and (3) assembly of modernized MK-48 Mod 7 components back to an All-Up-Round (AUR) configuration, either exercise or warshot. HWT 4T components include the following: wire coils, flex hoses, Otto Fuel, igniters, propellant, A-cables, A-cable inserts, A-cable receptacles, cylinder barrels, exercise fuel tanks, containers, and chamber and valves.

[P5 - 3 / F8101 - HEAVYWEIGHT OTHER EQUIPMENT INVESTMENT]: Procure modernized Automatic Test Equipment (ATE) to perform full-up automatic comprehensive system testing of all Torpedo MK 48 variants in an All-Up-Round (AUR) torpedo configuration. Support numerous additional testing evolutions, including factory acceptance testing, proofing, periodic maintenance, group testing, and weapon turnaround/conversion activities.

[P5 - 3 / F8843 - HEAVYWEIGHT QUALITY ASSURANCE]: Provides material costs associated with failure analysis and site investigations for torpedo system component failures and product QA and critical unique firing tests.

[P5 - 3 / F8833 - HEAVYWEIGHT PRODUCTION ENGINEERING - IN HOUSE]: Provides for production support services at NUWC Divisions KPT/NPT including program planning, funds management, budgeting, data management, acquisition engineering, software management, ILS, and GFE management, training equipment, and configuration management.

[P5 - 3 / F8863 - HEAVY WEIGHT ACCEPTANCE TEST AND EVALUATION]: Provides support for acceptance testing of HWT 4T components.

[P5 - 3 / F8893 - HEAVYWEIGHT PRODUCTION ENGINEERING - CONTRACTOR]: Provides for production support services including program planning, funds management, budgeting, and data management.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 3: Support Equipment	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Lightweight Torpedo Support Equipment	P-5a, P-21			- / 135.246	- / 26.075	- / 34.205	- / 0.000	- / 31.888	- / 31.888
P-5	2 / Recoverable Exercise Torpedo	P-5a			- / 12.706	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	3 / Heavyweight Torpedo Support Equipment	P-5a, P-21			- / 371.615	- / 41.669	- / 44.166	- / 0.000	- / 47.140	- / 47.140
P-40	**Total Gross/Weapon System Cost**				**- / 519.567**	**- / 67.744**	**- / 78.371**	**- / 0.000**	**- / 79.028**	**- / 79.028**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 Program Changes:

F8002 (2.1.1) Lightweight Other Equipment Investment: decrease from FY19 to FY20 is due to a one-time funding in FY19 of $2.6M for 32 MK 54 FES's.

F8100: $3.2M increase to procure 4T material required to assemble the additional Exercise and New Production AUR Warshot torpedoes being assembled starting in FY20. This line buys the material required to assemble the components procured in WPN 3117 and maintenance turns funded in OMN 1D4D.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	135.246	26.075	34.205	0.000	31.888	31.888
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	135.246	26.075	34.205	0.000	31.888	31.888
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**135.246**	**26.075**	**34.205**	**0.000**	**31.888**	**31.888**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - F8001 - LWT SUPPORT EQUIPMENT Cost																		
Recurring Cost																		
1.1.1) F8001 MK46 Maintenance Kits	329.82	285	0.094	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)(†)	129.58	1,775	0.230	105.46	450	0.047	104.53	400	0.042	-	-	0.000	106.62	400	0.043	106.62	400	0.043
1.1.3) F8001 MK54 Maintenance Kits (BWLW)(†)	450.57	435	0.196	453.81	300	0.136	449.79	200	0.090	-	-	0.000	458.79	200	0.092	458.79	200	0.092
1.1.4) F8001 MK54 Pinger Kits (BWLX)(†)	44.36	1,330	0.059	50.64	300	0.015	50.19	400	0.020	-	-	0.000	51.19	400	0.020	51.19	400	0.020
1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)(†)	1,844.97	2,335	4.308	1,673.94	300	0.502	1,691.32	400	0.677	-	-	0.000	1,725.15	400	0.690	1,725.15	400	0.690
1.1.6) F8001 Propeller Baffles (CWRJ)(†)	293.91	1,987	0.584	316.39	200	0.063	232.02	200	0.046	-	-	0.000	236.67	200	0.047	236.67	200	0.047
1.1.7) F8001 Thermal Battery (5W15)(†)	3,053.81	1,468	4.483	1,562.80	362	0.566	1,548.94	400	0.620	-	-	0.000	1,579.92	400	0.632	1,579.92	400	0.632
1.1.8) F8001 Battery, TDS (MK 54) (CWRP)(†)	181.54	1,625	0.295	189.63	250	0.047	187.95	400	0.075	-	-	0.000	191.71	400	0.077	191.71	400	0.077

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 1 / Lightweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)(†)	210.00	800	0.168	211.68	150	0.032	209.81	400	0.084	-	-	0.000	214.00	400	0.086	214.00	400	0.086
1.1.10) F8001 MK54 Igniter (TH04)(†)	767.32	2,050	1.573	791.92	350	0.277	769.94	400	0.308	-	-	0.000	785.34	400	0.314	785.34	400	0.314
1.1.11) F8001 MK54 BSS Bags(†)	24,125.00	16	0.386	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.12) F8001 Electric Initiator(†)	1,840.00	200	0.368	-	-	0.000	1,475.00	200	0.295	-	-	0.000	1,505.00	200	0.301	1,505.00	200	0.301
1.1.13) F8001 Generator Assembly, Gas(†)	13,726.96	586	8.044	-	-	0.000	10,676.67	310	3.310	-	-	0.000	10,892.00	280	3.050	10,892.00	280	3.050
1.1.14) F8001 Valve Assembly , Fuel Shutoff (3W41)(†)	807.66	1,175	0.949	755.94	240	0.181	748.89	400	0.300	-	-	0.000	764.44	400	0.306	764.44	400	0.306
1.1.15) F8001 Pressure Cylinder, Warshot (YW09)(†)	1,013.24	1,284	1.301	1,025.51	150	0.154	1,025.85	200	0.205	-	-	0.000	1,046.37	200	0.209	1,046.37	200	0.209
1.1.16) F8001 Pressure Cylinder, Exercise (TW58)(†)	1,150.57	963	1.108	-	-	0.000	1,133.33	240	0.272	-	-	0.000	1,154.17	240	0.277	1,154.17	240	0.277
1.1.17) F8001 MK46 Seawater Batteries	1,162.50	400	0.465	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.18) F8001 MK31 Stabilizer (QW47)(†)	2,077.27	1,100	2.285	1,863.78	300	0.559	1,882.50	400	0.753	-	-	0.000	1,920.00	400	0.768	1,920.00	400	0.768
1.1.19) F8001 VLA Reassembly Kits(†)	3,291.97	274	0.902	2,818.83	30	0.085	2,800.00	30	0.084	-	-	0.000	2,833.33	30	0.085	2,833.33	30	0.085
1.1.20) F8001 VLA Thermal Battery (CWEC)(†)	1,590.48	210	0.334	1,877.17	25	0.047	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.21) F8001 VLA Separator Nut Initiator (MT99)(†)	1,197.73	880	1.054	-	-	0.000	960.00	50	0.048	-	-	0.000	980.00	50	0.049	980.00	50	0.049
1.1.22) F8001 MK792/0 Universal AUR Container	-	-	1.781	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.23) F8001 Universal REXTORP Containers	46,757.14	70	3.273	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 1 / Lightweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1.1.24) F8001 Sonobuoys(†)	2,285.71	336	0.768	2,666.42	48	0.128	2,740.21	48	0.132	-	-	0.000	2,791.67	48	0.134	2,791.67	48	0.134
1.1.25) F8001 SWT Target Procurement	-	-	0.403	-	-	0.075	-	-	0.075	-	-	0.000	-	-	0.077	-	-	0.077
1.1.26) F8001 VLA Telemetry Kits(†)	104,000.00	20	2.080	99,407.75	4	0.398	102,390.00	4	0.410	-	-	0.000	104,500.00	4	0.418	104,500.00	4	0.418
1.1.27) F8001 Suspension Bands (T107)(†)	2,340.30	1,052	2.462	2,428.58	400	0.971	2,344.44	400	0.938	-	-	0.000	2,391.11	400	0.956	2,391.11	400	0.956
1.1.28) F8001 Otto Fuel Reclamation	-	-	3.847	-	-	0.435	-	-	0.444	-	-	0.000	-	-	0.453	-	-	0.453
1.1.29) F8001 VLA Refurbishment Kits(†)	1,019K	22	22.415	426,939.39	33	14.089	435,575.76	33	14.374	-	-	0.000	446,121.21	33	14.722	446,121.21	33	14.722
1.1.30) F8001 ECP/ ORDALT	-	-	0.023	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.31) F8001 4T Procurement Support	-	-	0.059	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.32) F8001 MK 28 Stabilizer (TA68)(†)	4,360.00	300	1.308	4,662.86	175	0.816	4,626.67	300	1.388	-	-	0.000	4,720.00	300	1.416	4,720.00	300	1.416
Subtotal: Recurring Cost	-	-	*67.605*	-	-	*19.623*	-	-	*24.990*	-	-	*0.000*	-	-	*25.222*	-	-	*25.222*
Subtotal: Hardware - F8001 - LWT SUPPORT EQUIPMENT Cost	**-**	**-**	***67.605***	**-**	**-**	***19.623***	**-**	**-**	***24.990***	**-**	**-**	***0.000***	**-**	**-**	***25.222***	**-**	**-**	***25.222***
Hardware - F8002 LIGHTWEIGHT OTHER EQUIPMENT INVESTMENT Cost																		
Recurring Cost																		
2.1.1) F8002 Lightweight Other Equipment Investment	-	-	29.983	-	-	2.034	-	-	4.715	-	-	0.000	-	-	2.114	-	-	2.114
Subtotal: Recurring Cost	-	-	*29.983*	-	-	*2.034*	-	-	*4.715*	-	-	*0.000*	-	-	*2.114*	-	-	*2.114*
Subtotal: Hardware - F8002 LIGHTWEIGHT OTHER EQUIPMENT INVESTMENT Cost	**-**	**-**	***29.983***	**-**	**-**	***2.034***	**-**	**-**	***4.715***	**-**	**-**	***0.000***	**-**	**-**	***2.114***	**-**	**-**	***2.114***
Support - F8830 LIGHTWEIGHT PRODUCTION ENGINEERING - IN HOUSE Cost																		
3.1) F8830 Lightweight Production Engineering (In House)	-	-	29.171	-	-	3.853	-	-	3.930	-	-	0.000	-	-	3.976	-	-	3.976
Subtotal: Support - F8830 LIGHTWEIGHT	**-**	**-**	***29.171***	**-**	**-**	***3.853***	**-**	**-**	***3.930***	**-**	**-**	***0.000***	**-**	**-**	***3.976***	**-**	**-**	***3.976***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 1 / Lightweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
PRODUCTION ENGINEERING - IN HOUSE Cost																		
Support - F8840 - LIGHTWEIGHT QUALITY ASSURANCE Cost																		
4.1) F8840 Lightweight Quality Assurance	-	-	0.297	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - F8840 - LIGHTWEIGHT QUALITY ASSURANCE Cost	**-**	**-**	***0.297***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support - F8860 - LIGHTWEIGHT ACCEPTANCE TEST AND EVALUATION Cost																		
5.1) F8860 Lightweight Acceptance Test and Evaluation	-	-	5.307	-	-	0.265	-	-	0.270	-	-	0.000	-	-	0.276	-	-	0.276
Subtotal: Support - F8860 - LIGHTWEIGHT ACCEPTANCE TEST AND EVALUATION Cost	**-**	**-**	***5.307***	**-**	**-**	***0.265***	**-**	**-**	***0.270***	**-**	**-**	***0.000***	**-**	**-**	***0.276***	**-**	**-**	***0.276***
Support - F8900 - LIGHTWEIGHT PRODUCTION ENGINEERING - CONTRACTOR Cost																		
6.1) F8900 Lightweight Production Engineering - Contractor	-	-	2.883	-	-	0.300	-	-	0.300	-	-	0.000	-	-	0.300	-	-	0.300
Subtotal: Support - F8900 - LIGHTWEIGHT PRODUCTION ENGINEERING - CONTRACTOR Cost	**-**	**-**	***2.883***	**-**	**-**	***0.300***	**-**	**-**	***0.300***	**-**	**-**	***0.000***	**-**	**-**	***0.300***	**-**	**-**	***0.300***
Gross/Weapon System Cost	**-**	**-**	**135.246**	**-**	**-**	**26.075**	**-**	**-**	**34.205**	**-**	**-**	**0.000**	**-**	**-**	**31.888**	**-**	**-**	**31.888**

Remarks:
[Hardware] 4T material is consumed by the Fleet and IMAs each year, and must be replaced to maintain required inventory levels (2 year stock level). If funds are marked due to contract award delays, the next years funding is not adequate to replenish material consumed in the year prior, resulting in reduced inventory putting future torpedo builds at risk. All production deliveries, Fleet training, and Warshot maintenance builds depend on 4T material being readily available.

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 1 / Lightweight Torpedo Support Equipment

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)		2015	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Nov 2015	Apr 2016	350	102.86	Y		May 2015
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)		2016	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	400	115.13	Y		
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)		2017	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Sep 2017	Apr 2018	400	98.52	Y		
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)		2018	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Sep 2018	Feb 2019	450	105.46	Y		
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)		2019	Wair Products / Minneapolis, MN	C / FFP	NAVSUP-WSS	Mar 2019	Aug 2019	400	104.53	Y		
1.1.2) F8001 MK 54 Turnaround Kits (CWQB)	✓	2020	TBD / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Oct 2020	400	106.62	Y		
1.1.3) F8001 MK54 Maintenance Kits (BWLW)		2015	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Nov 2015	Apr 2016	35	542.86	Y		May 2015
1.1.3) F8001 MK54 Maintenance Kits (BWLW)		2016	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	May 2016	Nov 2016	35	571.43	Y		
1.1.3) F8001 MK54 Maintenance Kits (BWLW)		2017	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Sep 2017	Mar 2018	300	423.97	Y		
1.1.3) F8001 MK54 Maintenance Kits (BWLW)		2018	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Sep 2018	Feb 2019	300	453.81	Y		
1.1.3) F8001 MK54 Maintenance Kits (BWLW)		2019	Wair Products / Minneapolis, MN	C / FFP	NAVSUP-WSS	Mar 2019	Sep 2019	200	449.79	Y		
1.1.3) F8001 MK54 Maintenance Kits (BWLW)	✓	2020	UNKNOWN / NAVSUP GLS	C / FFP	NAVSUP-WSS	Apr 2020	Oct 2020	200	458.79	Y		
1.1.4) F8001 MK54 Pinger Kits (BWLX)		2015	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Nov 2015	May 2016	320	35.18	Y		May 2015
1.1.4) F8001 MK54 Pinger Kits (BWLX)		2016	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	320	37.50	Y		
1.1.4) F8001 MK54 Pinger Kits (BWLX)		2017	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Sep 2017	Mar 2018	200	47.31	Y		
1.1.4) F8001 MK54 Pinger Kits (BWLX)		2018	Wair Products / Minneapolis, MN	C / FFP	NAVSUP, GLS	Sep 2018	Feb 2019	300	50.64	Y		
1.1.4) F8001 MK54 Pinger Kits (BWLX)		2019	Wair Products / Minneapolis, MN	C / FFP	NAVSUP-WSS	Apr 2019	Oct 2019	400	50.19	Y		
1.1.4) F8001 MK54 Pinger Kits (BWLX)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	400	51.19	Y		
1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)		2015	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Feb 2015	Aug 2015	450	1,622.22	Y		Apr 2014

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1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)		2016	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Nov 2015	May 2016	550	1,703.64	Y		
1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)		2017	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Feb 2017	Aug 2017	200	1,594.23	Y		
1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)		2018	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Jan 2018	Jul 2018	300	1,673.94	Y		
1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)		2019	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Oct 2018	Apr 2019	400	1,691.32	Y		
1.1.5) F8001 MK54 Lanyard Start Assembly (BWJA)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	400	1,725.15	Y		
1.1.6) F8001 Propeller Baffles (CWRJ)		2015	PRN ASSOCIATES / INDIANAPOLIS, IN	C / FFP	NAVSUP, GLS	Jun 2015	Dec 2015	200	275.00	Y		Apr 2015
1.1.6) F8001 Propeller Baffles (CWRJ)		2016	PRN ASSOCIATES / INDIANAPOLIS, IN	C / FFP	NAVSUP, GLS	Jul 2016	Jan 2017	300	290.00	Y		Nov 2015
1.1.6) F8001 Propeller Baffles (CWRJ)		2017	Electro Mechanical Specialists / Norwich, CT	C / FFP	NAVSUP, GLS	Jun 2017	Jan 2018	200	232.03	Y		
1.1.6) F8001 Propeller Baffles (CWRJ)		2018	Electro Mechanical Specialists / Norwich, CT	C / FFP	NAVSUP, GLS	Aug 2018	Mar 2019	200	316.39	Y		
1.1.6) F8001 Propeller Baffles (CWRJ)		2019	Electro Mechanical Specialists / Norwich, CT	C / FFP	NAVSUP, GLS	Jul 2019	Feb 2020	200	232.02	Y		
1.1.6) F8001 Propeller Baffles (CWRJ)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Jul 2020	Jan 2021	200	236.67	Y		
1.1.7) F8001 Thermal Battery (5W15)		2015	ADVANCED THERMAL BATTERIES / NAVSUP, LOC	C / FFP	NAVSUP, GLS	Nov 2015	May 2016	235	1,561.70	Y		Apr 2015
1.1.7) F8001 Thermal Battery (5W15)		2017	ADVANCED THERMAL BATTERIES / NAVSUP, LOC	C / FFP	NAVSUP, GLS	Mar 2018	Sep 2018	421	1,460.03	Y		
1.1.7) F8001 Thermal Battery (5W15)		2018	ADVANCED THERMAL BATTERIES, INC / COCKEYSVILLE, MD	C / FFP	NAVSUP, GLS	Jul 2018	Dec 2018	362	1,562.80	Y		
1.1.7) F8001 Thermal Battery (5W15)		2019	ADVANCED THERMAL BATTERIES, INC / COCKEYSVILLE, MD	C / FFP	NAVSUP, GLS	Mar 2019	Aug 2019	400	1,548.94	Y		
1.1.7) F8001 Thermal Battery (5W15)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	400	1,579.92	Y		
1.1.8) F8001 Battery, TDS (MK 54) (CWRP)		2015	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	Mar 2015	Sep 2015	300	186.67	Y		Oct 2014
1.1.8) F8001 Battery, TDS (MK 54) (CWRP)		2016	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	May 2016	Nov 2016	300	196.67	Y		Nov 2015
1.1.8) F8001 Battery, TDS (MK 54) (CWRP)		2017	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	Sep 2017	Mar 2018	325	177.16	Y		

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1.1.8) F8001 Battery, TDS (MK 54) (CWRP)		2018	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	Aug 2018	Feb 2019	250	189.63	Y		
1.1.8) F8001 Battery, TDS (MK 54) (CWRP)		2019	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	400	187.95	Y		
1.1.8) F8001 Battery, TDS (MK 54) (CWRP)	✓	2020	UNKNOWN / NAVSUP GLS	C / FFP	NAVSUP-WSS	May 2020	Oct 2020	400	191.71	Y		
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)		2015	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	Mar 2015	Sep 2015	150	220.00	Y		Oct 2014
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)		2016	EUR-PAC CORP - FY-16 / WATERBURY, CT	C / FFP	NAVSUP, GLS	May 2016	Dec 2016	150	226.67	Y		Dec 2015
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)		2017	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	Sep 2017	Mar 2018	200	197.76	Y		
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)		2018	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	Aug 2018	Feb 2019	150	211.68	Y		
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)		2019	EUR-PAC CORP / WATERBURY, CT	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	400	209.81	Y		
1.1.9) F8001 Battery, Scuttle (MK54) (CWRQ)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Oct 2020	400	214.00	Y		
1.1.10) F8001 MK54 Igniter (TH04)		2015	PACIFIC SCIENTIFIC ENERGETIC MATERIALS / HOLLISTER, CA	C / FFP	NAVSUP, GLS	Sep 2015	Mar 2016	400	552.50	Y		Jan 2015
1.1.10) F8001 MK54 Igniter (TH04)		2017	PACIFIC SCIENTIFIC ENERGETIC MATERIALS / HOLLISTER, CA	C / FFP	NAVSUP, GLS	Mar 2017	Sep 2017	350	725.75	Y		
1.1.10) F8001 MK54 Igniter (TH04)		2018	PACIFIC SCIENTIFIC ENERGETIC MATERIALS / HOLLISTER, CA	C / FFP	NAVSUP, GLS	Aug 2018	Feb 2019	350	791.92	Y		
1.1.10) F8001 MK54 Igniter (TH04)		2019	PACIFIC SCIENTIFIC ENERGETIC MATERIALS / HOLLISTER, CA	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	400	769.94	Y		
1.1.10) F8001 MK54 Igniter (TH04)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Jun 2020	Dec 2020	400	785.34	Y		
1.1.11) F8001 MK54 BSS Bags		2015	NUWC KEYPORT / KEYPORT WASHINGTON	C / FFP	NUWC, KEYPORT	Mar 2015	Jan 2016	6	27,666.67	Y		
1.1.12) F8001 Electric Initiator		2019	TBD / TBD	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	200	1,475.00	Y		
1.1.12) F8001 Electric Initiator	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	May 2020	Nov 2020	200	1,505.00	Y		
1.1.13) F8001 Generator Assembly, Gas		2017	GEN DYNAMICS, RENTON, WA / NUWC, KEYPORT	C / FFP	NAVSUP, GLS	Oct 2016	Aug 2017	194	10,073.80	Y		
1.1.13) F8001 Generator Assembly, Gas		2019	GEN DYNAMICS, RENTON, WA / NUWC, KEYPORT	C / FFP	NAVSUP, GLS	May 2019	Mar 2020	310	10,676.67	Y		
1.1.13) F8001 Generator Assembly, Gas	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	May 2020	Nov 2020	280	10,892.00	Y		

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1.1.14) F8001 Valve Assembly , Fuel Shutoff (3W41)		2015	GENERAL DYNAMICS FY15 / VIRGINIA	C / FFP	NAVSUP, GLS	Aug 2015	Mar 2016	325	711.42	Y		Apr 2015
1.1.14) F8001 Valve Assembly , Fuel Shutoff (3W41)		2016	GENERAL DYNAMICS - 2 / VIRGINIA	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	300	746.67	Y		Oct 2015
1.1.14) F8001 Valve Assembly , Fuel Shutoff (3W41)		2018	GENERAL DYNAMICS - 2 / VIRGINIA	C / FFP	NAVSUP, GLS	Sep 2018	Feb 2019	240	755.94	Y		
1.1.14) F8001 Valve Assembly , Fuel Shutoff (3W41)		2019	GENERAL DYNAMICS - 2 / VIRGINIA	C / FFP	NAVSUP, GLS	May 2019	Oct 2019	400	748.89	Y		
1.1.14) F8001 Valve Assembly , Fuel Shutoff (3W41)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	May 2020	Oct 2020	400	764.44	Y		
1.1.15) F8001 Pressure Cylinder, Warshot (YW09)		2015	Cartridge Actuated Devices/ NAVSUP, GLS / Fairfield, NJ	C / FFP	NAVSUP, GLS	Nov 2015	May 2016	350	937.75	Y		
1.1.15) F8001 Pressure Cylinder, Warshot (YW09)		2018	Cartridge Actuated Devices/ NAVSUP, GLS / Fairfield, NJ	C / FFP	NAVSUP, GLS	Aug 2018	Mar 2019	150	1,025.51	Y		
1.1.15) F8001 Pressure Cylinder, Warshot (YW09)		2019	Cartridge Actuated Devices/ NAVSUP, GLS / Fairfield, NJ	C / FFP	NAVSUP, GLS	May 2019	Dec 2019	200	1,025.85	Y		
1.1.15) F8001 Pressure Cylinder, Warshot (YW09)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	May 2020	Oct 2020	200	1,046.37	Y		
1.1.16) F8001 Pressure Cylinder, Exercise (TW58)		2015	Cartridge Actuated Devices FY15 / Fairfield, NJ	C / FFP	NAVSUP, GLS	Nov 2015	Jun 2016	200	1,075.00	Y		
1.1.16) F8001 Pressure Cylinder, Exercise (TW58)		2016	Cartridge Actuated Devices FY16 / Fairfield, NJ	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	200	1,125.00	Y		
1.1.16) F8001 Pressure Cylinder, Exercise (TW58)		2019	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP, GLS	Jun 2019	Nov 2019	240	1,133.33	Y		
1.1.16) F8001 Pressure Cylinder, Exercise (TW58)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Jun 2020	Nov 2020	240	1,154.17	Y		
1.1.18) F8001 MK31 Stabilizer (QW47)		2015	UNITED TEREX INC, NOR PA / FAIRVIEW VILLAGE, PA/NUWC, KEYPORT	C / FFP	NAVSUP, GLS	Jul 2015	Jan 2016	200	1,940.00	Y		Jan 2015
1.1.18) F8001 MK31 Stabilizer (QW47)		2017	UNITED TEREX INC, NOR PA / FAIRVIEW VILLAGE, PA/NUWC, KEYPORT	C / FFP	NAVSUP, GLS	Mar 2017	Sep 2017	500	1,775.03	Y		
1.1.18) F8001 MK31 Stabilizer (QW47)		2018	UNITED TEREX INC, NOR PA / FAIRVIEW VILLAGE, PA/NUWC, KEYPORT	C / FFP	NAVSUP, GLS	Aug 2018	Feb 2019	300	1,863.78	Y		
1.1.18) F8001 MK31 Stabilizer (QW47)		2019	UNITED TEREX INC, NOR PA / FAIRVIEW VILLAGE, PA/NUWC, KEYPORT	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	400	1,882.50	Y		

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1.1.18) F8001 MK31 Stabilizer (QW47)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	May 2020	Oct 2020	400	1,920.00	Y		
1.1.19) F8001 VLA Reassembly Kits		2015	Sunbelt Design & Developement / NAVSUP, GLS	C / FFP	NAVSUP, GLS	Apr 2015	Oct 2015	45	1,488.89	Y		Jan 2015
1.1.19) F8001 VLA Reassembly Kits		2016	Sunbelt Design & Developement FY16 / NAVSUP, GLS	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	45	1,555.56	Y		
1.1.19) F8001 VLA Reassembly Kits		2017	Sunbelt Design & Developement / NAVSUP, GLS	C / FFP	NAVSUP, GLS	Sep 2017	Mar 2018	30	2,633.47	Y		
1.1.19) F8001 VLA Reassembly Kits		2018	Sunbelt Design & Developement / NAVSUP, GLS	C / FFP	NAVSUP, GLS	Jul 2018	Jan 2019	30	2,818.83	Y		
1.1.19) F8001 VLA Reassembly Kits		2019	Sunbelt Design & Developement / NAVSUP, GLS	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	30	2,800.00	Y		
1.1.19) F8001 VLA Reassembly Kits	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Mar 2020	Aug 2020	30	2,833.33	Y		
1.1.20) F8001 VLA Thermal Battery (CWEC)		2015	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Jul 2015	Jan 2016	50	1,621.58	Y		Jan 2015
1.1.20) F8001 VLA Thermal Battery (CWEC)		2016	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Nov 2015	Nov 2016	60	1,700.00	Y		
1.1.20) F8001 VLA Thermal Battery (CWEC)		2018	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Jul 2018	Jan 2019	25	1,877.17	Y		
1.1.21) F8001 VLA Separator Nut Initiator (MT99)		2015	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Sep 2015	Mar 2016	150	1,321.90	Y		Jan 2015
1.1.21) F8001 VLA Separator Nut Initiator (MT99)		2016	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Jan 2016	Jul 2016	150	1,386.67	Y		
1.1.21) F8001 VLA Separator Nut Initiator (MT99)		2017	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Jan 2018	Jul 2018	40	908.48	Y		
1.1.21) F8001 VLA Separator Nut Initiator (MT99)		2019	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	50	960.00	Y		
1.1.21) F8001 VLA Separator Nut Initiator (MT99)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	50	980.00	Y		
1.1.24) F8001 Sonobuoys		2015	UNDERSEA SENSOR SYSTEMS INC / COLUMBIA CITY, IN	C / FFP	NUWC, KEYPORT	Jun 2015	Dec 2015	48	2,251.00	Y		Nov 2014
1.1.24) F8001 Sonobuoys		2016	UNDERSEA SENSOR SYSTEMS INC / COLUMBIA CITY, IN	C / FFP	NUWC, KEYPORT	Jan 2016	Jul 2016	48	2,354.17	Y		
1.1.24) F8001 Sonobuoys		2017	UNDERSEA SENSOR SYSTEMS INC / COLUMBIA CITY, IN	C / FFP	NUWC, KEYPORT	Jan 2017	Jul 2017	48	2,594.77	Y		
1.1.24) F8001 Sonobuoys		2018	UNDERSEA SENSOR SYSTEMS INC / COLUMBIA CITY, IN	C / FFP	NUWC, KEYPORT	Jul 2018	Jan 2019	48	2,666.42	Y		
1.1.24) F8001 Sonobuoys		2019	UNKNOWN / TBD	C / FFP	NUWC, KEYPORT	May 2019	Nov 2019	48	2,740.21	Y		

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1.1.24) F8001 Sonobuoys	✓	2020	UNKNOWN / TBD	C / FFP	NUWC, KEYPORT	Apr 2020	Oct 2020	48	2,791.67	Y		
1.1.26) F8001 VLA Telemetry Kits		2015	VARIOUS / CHINA LAKE	C / FFP	CHINA LAKE	Jun 2015	Dec 2015	2	91,000.00	Y		Dec 2014
1.1.26) F8001 VLA Telemetry Kits		2016	VARIOUS / CHINA LAKE	C / FFP	CHINA LAKE	Jan 2016	Jul 2016	4	93,750.00	Y		Jan 2016
1.1.26) F8001 VLA Telemetry Kits		2017	VARIOUS / CHINA LAKE	C / FFP	CHINA LAKE	Nov 2017	May 2018	4	96,512.50	Y		
1.1.26) F8001 VLA Telemetry Kits		2018	VARIOUS / CHINA LAKE	C / FFP	CHINA LAKE	Mar 2018	Sep 2018	4	99,407.75	Y		
1.1.26) F8001 VLA Telemetry Kits		2019	VARIOUS / CHINA LAKE	C / FFP	CHINA LAKE	Jun 2019	Dec 2019	4	102,390.00	Y		
1.1.26) F8001 VLA Telemetry Kits	✓	2020	VARIOUS / CHINA LAKE	C / FFP	CHINA LAKE	Jun 2020	Dec 2020	4	104,500.00	Y		
1.1.27) F8001 Suspension Bands (T107)		2016	United Terex Inc., Fairfield Village, PA / New MFG - Loc	C / FFP	NAVSUP, GLS	Jul 2016	Dec 2016	350	2,602.86	Y		Dec 2015
1.1.27) F8001 Suspension Bands (T107)		2017	United Terex Inc., Fairfield Village, PA / New MFG - Loc	C / FFP	NAVSUP, GLS	Jan 2017	Jun 2017	702	2,209.00	Y		
1.1.27) F8001 Suspension Bands (T107)		2018	United Terex Inc., Fairfield Village, PA / New MFG - Loc	C / FFP	NAVSUP, GLS	May 2018	Oct 2018	400	2,428.58	Y		
1.1.27) F8001 Suspension Bands (T107)		2019	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP, GLS	May 2019	Oct 2019	400	2,344.44	Y		
1.1.27) F8001 Suspension Bands (T107)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	May 2020	Oct 2020	400	2,391.11	Y		
1.1.29) F8001 VLA Refurbishment Kits(†)		2016	LOCKHEED MARTIN - FY16 / Akron, OH	C / BOA	NAVSUP, GLS	Sep 2016	Mar 2018	11	690,909.09	Y		
1.1.29) F8001 VLA Refurbishment Kits(†)		2017	LOCKHEED MARTIN - FY17 / Akron, OH	C / BOA	NAVSUP, GLS	Jun 2017	Jul 2019	11	683,181.82	Y		
1.1.29) F8001 VLA Refurbishment Kits(†)		2018	LOCKHEED MARTIN / Akron, OH	C / FFP	NAVSUP, GLS	Aug 2018	Sep 2020	33	426,939.39	Y		
1.1.29) F8001 VLA Refurbishment Kits(†)		2019	LOCKHEED MARTIN / Akron, OH	C / FFP	NAVSUP	Aug 2019	Sep 2021	33	435,575.76	Y		
1.1.29) F8001 VLA Refurbishment Kits	✓	2020	LOCKHEED MARTIN / Akron, OH	C / FFP	NAVSUP-WSS	Jun 2020	Jul 2022	33	446,121.21	Y		
1.1.32) F8001 MK 28 Stabilizer (TA68)		2017	United Terex, Inc / Fairfield Village, PA	C / FFP	NAVSUP, GLS	Sep 2017	Feb 2018	300	4,361.02	Y		
1.1.32) F8001 MK 28 Stabilizer (TA68)		2018	United Terex, Inc / Fairfield Village, PA	C / FFP	NAVSUP, GLS	Sep 2018	Mar 2019	175	4,662.86	Y		
1.1.32) F8001 MK 28 Stabilizer (TA68)		2019	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP, GLS	May 2019	Nov 2019	300	4,626.67	Y		
1.1.32) F8001 MK 28 Stabilizer (TA68)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	May 2020	Nov 2020	300	4,720.00	Y		

(†) indicates the presence of a P-21

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment

Cost Elements (Units in Each)							Fiscal Year 2015												Fiscal Year 2016												BALANCE
										Calendar Year 2015												Calendar Year 2016									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	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	
1.1.29) F8001 VLA Refurbishment Kits																															
	1	2016	NAVY	11	0	11																								A -	11
	2	2017	NAVY	11	0	11																									11
	3	2018	NAVY	33	0	33																									33
	3	2019	NAVY	33	0	33																									33
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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	
1.1.29) F8001 VLA Refurbishment Kits																															
	1	2016	NAVY	11	0	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11							0
	2	2017	NAVY	11	0	11									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
	3	2018	NAVY	33	0	33																							A -	-	33
	3	2019	NAVY	33	0	33																									33
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.29) F8001 VLA Refurbishment Kits																															
	1	2016	NAVY	11	11	0																									0
	2	2017	NAVY	11	0	11	-	-	-	-	-	-	-	-	-	11															0
	3	2018	NAVY	33	0	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	0
	3	2019	NAVY	33	0	33											A -	-	-	-	-	-	-	-	-	-	-	-	-	-	33
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment

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	
1.1.29) F8001 VLA Refurbishment Kits																															
	1	2016	NAVY	11	11	0																									0
	2	2017	NAVY	11	11	0																									0
	3	2018	NAVY	33	33	0																									0
	3	2019	NAVY	33	0	33	-	-	-	-	-	-	-	-	-	-	-	33													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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 1 / Lightweight Torpedo Support Equipment

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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 - FY16 - Akron, OH	11	22	33	0	0	18	18	0	0	0	0
2	LOCKHEED MARTIN - FY17 - Akron, OH	11	22	33	0	0	25	25	0	0	0	0
3	LOCKHEED MARTIN - Akron, OH	11	22	33	0	0	25	25	0	0	25	25

"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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 2 / Recoverable Exercise Torpedo
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	12.706	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	12.706	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**12.706**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - F8003 LIGHTWEIGHT RECOVERABLE EXERCISE TORPEDO (REXTORP) Cost																		
Recurring Cost																		
1.1.1) Lightweight REXTORP Bodies / Assembly & Test(†)	46,794.24	243	11.371	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) Lightweight REXTORP Fire Control Modules / Assembly & Test(†)	4,959.02	122	0.605	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) Lightweight REXTORP Containers / Assembly & Test	10,428.57	70	0.730	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*12.706*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - F8003 LIGHTWEIGHT RECOVERABLE EXERCISE TORPEDO (REXTORP) Cost	**-**	**-**	***12.706***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**12.706**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 2 / Recoverable Exercise Torpedo

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) Lightweight REXTORP Bodies / Assembly & Test		2015	B-K MFG, ARAB AL / NUWC, KEYPORT	C / FFP	NUWC, KEYPORT	Jan 2015	Jun 2015	40	23,925.00	Y		
1.1.2) Lightweight REXTORP Fire Control Modules / Assembly & Test		2015	B-K MFG, ARAB AL / NUWC, KEYPORT	C / FFP	NUWC, KEYPORT	Jun 2015	Nov 2015	40	5,250.00	Y		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 3 / Heavyweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	371.615	41.669	44.166	0.000	47.140	47.140
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	371.615	41.669	44.166	0.000	47.140	47.140
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**371.615**	**41.669**	**44.166**	**0.000**	**47.140**	**47.140**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - F8100 - HEAVYWEIGHT EXERCISE AND EXPENDABLES AND COMPONENT REPLACEMENT Cost																		
Recurring Cost																		
1.1.1) F8100 Guidance and Control Assembly(†)	311,829.79	47	14.656	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) F8100 MK 62-1 A-Cable (CWFP)(†)	7,043.24	370	2.606	3,870.88	50	0.194	3,946.67	100	0.395	-	-	0.000	4,025.00	200	0.805	4,025.00	200	0.805
1.1.3) F8100 MK 62-1 A-Cable Insert (CWLE)(†)	262.94	5,450	1.433	-	-	0.000	266.67	100	0.027	-	-	0.000	270.00	200	0.054	270.00	200	0.054
1.1.4) F8100 MK 62-1 A-Cable Receptacle (CWLD)(†)	-	-	3.078	-	-	0.000	1,960.00	100	0.196	-	-	0.000	2,000.00	200	0.400	2,000.00	200	0.400
1.1.5) F8100 Flex Hose (Improved) (CWQC)(†)	6,364.67	1,670	10.629	2,466.27	400	0.987	2,515.00	400	1.006	-	-	0.000	2,565.00	450	1.154	2,565.00	450	1.154
1.1.6) F8100 Strong Flex Hose (WW97)(†)	1,752.08	480	0.841	1,491.53	150	0.224	1,520.00	200	0.304	-	-	0.000	1,551.11	225	0.349	1,551.11	225	0.349
1.1.7) F8100 Igniter (TH01)(†)	973.17	3,466	3.373	712.29	504	0.359	725.93	600	0.436	-	-	0.000	740.74	700	0.519	740.74	700	0.519
1.1.8) F8100 Propellant (WW98)(†)	2,930.86	3,500	10.258	1,810.71	1,000	1.811	1,846.00	400	0.738	-	-	0.000	1,883.08	700	1.318	1,883.08	700	1.318

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 3 / Heavyweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1.1.9) F8100 Scuttle Valve (SW94)(†)	894.56	294	0.263	-	-	0.000	-	-	0.000	-	-	0.000	1,055.56	36	0.038	1,055.56	36	0.038
1.1.10) F8100 Sub Wire Coil (TW92)(†)	7,770.34	3,675	28.556	3,996.50	625	2.498	4,076.80	600	2.446	-	-	0.000	4,158.40	700	2.911	4,158.40	700	2.911
1.1.11) F8100 Torpedo Wire Coil (SW83)(†)	19,461.60	1,250	24.327	6,191.81	550	3.405	6,316.00	600	3.790	-	-	0.000	6,442.00	700	4.509	6,442.00	700	4.509
1.1.12) F8100 OTTO Fuel - Moser Plant Warm	-	-	7.600	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.13) F8100 Otto Fuel	-	-	32.080	-	-	6.886	-	-	7.024	-	-	0.000	-	-	7.164	-	-	7.164
1.1.14) F8100 Crossover Batteries (CWRG)(†)	3,413.33	3,300	11.264	2,695.08	625	1.684	2,748.80	600	1.649	-	-	0.000	2,803.20	700	1.962	2,803.20	700	1.962
1.1.15) F8100 Sonobuoys(†)	2,185.19	486	1.062	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.16) F8100 A/B Dampening Material	-	-	1.016	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.17) F8100 SWT Target Procurment	-	-	0.338	-	-	0.062	-	-	0.063	-	-	0.000	-	-	0.065	-	-	0.065
1.1.18) F8100 ORDALTS	-	-	3.073	-	-	0.421	-	-	0.430	-	-	0.000	-	-	0.438	-	-	0.438
1.1.19) F8100 Deep Proofer Kits 1(†)	4,236.84	570	2.415	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.20) F8100 Deep Proofer Kits 2(†)	4,462.22	450	2.008	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.21) F8100 Short Wire Coils (CWRT)(†)	3,984.38	1,600	6.375	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.22) F8100 Replacement Nose Arrays(†)	229,520.00	50	11.476	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.23) F8100 WES Expansion Box(†)	-	-	0.000	-	-	0.000	14,534.78	230	3.343	-	-	0.000	14,826.09	230	3.410	14,826.09	230	3.410
Subtotal: Recurring Cost	-	-	*178.727*	-	-	*18.531*	-	-	*21.847*	-	-	*0.000*	-	-	*25.096*	-	-	*25.096*
Subtotal: Hardware - F8100 - HEAVYWEIGHT EXERCISE AND EXPENDABLES	**-**	**-**	***178.727***	**-**	**-**	***18.531***	**-**	**-**	***21.847***	**-**	**-**	***0.000***	**-**	**-**	***25.096***	**-**	**-**	***25.096***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 3 / Heavyweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
AND COMPONENT REPLACEMENT Cost																		
Hardware - F8101 - HEAVYWEIGHT OTHER EQUIPMENT INVESTMENT Cost																		
Recurring Cost																		
2.1.1) Heavyweight Other Equipment Investment	-	-	125.484	-	-	15.614	-	-	14.662	-	-	0.000	-	-	14.252	-	-	14.252
Subtotal: Recurring Cost	-	-	*125.484*	-	-	*15.614*	-	-	*14.662*	-	-	*0.000*	-	-	*14.252*	-	-	*14.252*
Subtotal: Hardware - F8101 - HEAVYWEIGHT OTHER EQUIPMENT INVESTMENT Cost	**-**	**-**	***125.484***	**-**	**-**	***15.614***	**-**	**-**	***14.662***	**-**	**-**	***0.000***	**-**	**-**	***14.252***	**-**	**-**	***14.252***
Support - F8843 - HEAVYWEIGHT QUALITY ASSURANCE Cost																		
3.1) Heavyweight Quality Assurance	-	-	2.842	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - F8843 - HEAVYWEIGHT QUALITY ASSURANCE Cost	**-**	**-**	***2.842***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Support - F8833 - HEAVYWEIGHT PRODUCTION ENGINEERING - IN HOUSE Cost																		
4.1) Heavyweight Production Engineering (In-House)	-	-	47.391	-	-	5.784	-	-	5.900	-	-	0.000	-	-	6.018	-	-	6.018
Subtotal: Support - F8833 - HEAVYWEIGHT PRODUCTION ENGINEERING - IN HOUSE Cost	**-**	**-**	***47.391***	**-**	**-**	***5.784***	**-**	**-**	***5.900***	**-**	**-**	***0.000***	**-**	**-**	***6.018***	**-**	**-**	***6.018***
Support - F8863 - HEAVY WEIGHT ACCEPTANCE TEST AND EVALUATION Cost																		
5.1) Heavyweight Acceptance Test and Evaulation	-	-	6.657	-	-	0.840	-	-	0.857	-	-	0.000	-	-	0.874	-	-	0.874
Subtotal: Support - F8863 - HEAVY WEIGHT ACCEPTANCE TEST AND EVALUATION Cost	**-**	**-**	***6.657***	**-**	**-**	***0.840***	**-**	**-**	***0.857***	**-**	**-**	***0.000***	**-**	**-**	***0.874***	**-**	**-**	***0.874***
Support - F8893 - HEAVYWEIGHT PRODUCTION ENGINEERING - CONTRACTOR Cost																		
6.1) Heavyweight Production Engineering - Contractor	-	-	10.514	-	-	0.900	-	-	0.900	-	-	0.000	-	-	0.900	-	-	0.900
Subtotal: Support - F8893 - HEAVYWEIGHT PRODUCTION	**-**	**-**	***10.514***	**-**	**-**	***0.900***	**-**	**-**	***0.900***	**-**	**-**	***0.000***	**-**	**-**	***0.900***	**-**	**-**	***0.900***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 3 / Heavyweight Torpedo Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
ENGINEERING - CONTRACTOR Cost																		
Gross/Weapon System Cost	-	-	371.615	-	-	41.669	-	-	44.166	-	-	0.000	-	-	47.140	-	-	47.140

Remarks:
[Hardware] 4T material is consumed by the Fleet and IMAs each year, and must be replaced to maintain required inventory levels (2 year stock level). If funds are marked due to contract award delays, the next years funding is not adequate to replenish material consumed in the year prior, resulting in reduced inventory putting future torpedo builds at risk. All production deliveries, Fleet training, and Warshot maintenance builds depend on 4T material being readily available.

F8100: $3.2M increase in FY20 to procure 4T material required to assemble the additional Exercise and New Production AUR Warshot torpedoes being assembled starting in FY20. This line buys the material required to assemble the components procured in WPN 3117 and maintenance turns funded in OMN 1D4D.

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 3 / Heavyweight Torpedo Support Equipment

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) F8100 Guidance and Control Assembly(†)		2014	Various / Various	C / FFP	NUWC, KEYPORT	Jul 2014	Jul 2016	47	311,829.79	Y		Apr 2012
1.1.2) F8100 MK 62-1 A-Cable (CWFP)		2015	DCX-CHOL / Chatsworth, CA	C / FFP	NAVSUP, GLS	Oct 2015	May 2016	60	3,200.00	Y		Apr 2015
1.1.2) F8100 MK 62-1 A-Cable (CWFP)		2016	Tyco Electronics Corporation, Boca Raton, Florida / NAVSUP GLS	C / FFP	NAVSUP, GLS	Jun 2016	Dec 2016	60	3,500.00	Y		Oct 2015
1.1.2) F8100 MK 62-1 A-Cable (CWFP)		2018	DCX-CHOL / Chatsworth, CA	C / FFP	NAVSUP, GLS	May 2018	Dec 2018	50	3,870.88	Y		
1.1.2) F8100 MK 62-1 A-Cable (CWFP)		2019	DCX-CHOL / Chatsworth, CA	C / FFP	NAVSUP, GLS	Apr 2019	Nov 2019	100	3,946.67	Y		
1.1.2) F8100 MK 62-1 A-Cable (CWFP)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Oct 2020	200	4,025.00	Y		
1.1.3) F8100 MK 62-1 A-Cable Insert (CWLE)		2015	SEACON PHOENIX, LLC / ASHAWAY, RI	C / FFP	NAVSUP, GLS	Apr 2015	Sep 2015	800	78.75	Y		Oct 2014
1.1.3) F8100 MK 62-1 A-Cable Insert (CWLE)		2016	SEACON PHOENIX, LLC / ASHAWAY, RI	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	650	83.08	Y		Oct 2015
1.1.3) F8100 MK 62-1 A-Cable Insert (CWLE)		2019	SEACON PHOENIX, LLC / ASHAWAY, RI	C / FFP	NAVSUP	Nov 2018	Apr 2019	100	266.67	Y		Aug 2018
1.1.3) F8100 MK 62-1 A-Cable Insert (CWLE)	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	200	270.00	Y		
1.1.4) F8100 MK 62-1 A-Cable Receptacle (CWLD)		2019	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP, GLS	Apr 2019	Sep 2019	100	1,960.00	Y		
1.1.4) F8100 MK 62-1 A-Cable Receptacle (CWLD)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	200	2,000.00	Y		
1.1.5) F8100 Flex Hose (Improved) (CWQC)		2015	HL Technologies LP / Stafford, TX	C / FFP	NAVSUP, GLS	Apr 2015	Nov 2015	400	2,397.50	Y		Oct 2014
1.1.5) F8100 Flex Hose (Improved) (CWQC)		2016	Cortland Company, Inc / Cortland, NY	C / FFP	NAVSUP, GLS	Apr 2016	Oct 2016	400	2,517.50	Y		Jan 2015
1.1.5) F8100 Flex Hose (Improved) (CWQC)		2017	Cortland Company, Inc / Cortland, NY	C / FFP	NAVSUP, GLS	Aug 2017	Feb 2018	360	2,348.83	Y		
1.1.5) F8100 Flex Hose (Improved) (CWQC)		2018	Umbilicals International Inc / Stafford, TX	C / FFP	NAVSUP, GLS	Nov 2018	Nov 2019	400	2,466.27	Y		Jul 2018
1.1.5) F8100 Flex Hose (Improved) (CWQC)		2019	Umbilicals International Inc / Stafford, TX	C / FFP	NAVSUP	Apr 2019	Apr 2020	400	2,515.00	Y		Oct 2018
1.1.5) F8100 Flex Hose (Improved) (CWQC)	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	Apr 2020	Oct 2020	450	2,565.00	Y		
1.1.6) F8100 Strong Flex Hose (WW97)		2015	PRECISION HOSE INC. / STONE MOUNTAIN, GA	C / FFP	NAVSUP, GLS	Jan 2015	Jun 2015	100	1,230.00	Y		Oct 2014

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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
1.1.6) F8100 Strong Flex Hose (WW97)		2016	PRECISION HOSE INC. / STONE MOUNTAIN, GA	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	100	1,290.00	Y		Oct 2015
1.1.6) F8100 Strong Flex Hose (WW97)		2017	PRECISION HOSE INC. / STONE MOUNTAIN, GA	C / FFP	NAVSUP, GLS	Feb 2018	Jul 2018	150	1,420.51	Y		
1.1.6) F8100 Strong Flex Hose (WW97)		2018	PRECISION HOSE INC. / STONE MOUNTAIN, GA	C / FFP	NAVSUP, GLS	Sep 2018	Feb 2019	150	1,491.53	Y		Jun 2018
1.1.6) F8100 Strong Flex Hose (WW97)		2019	PRECISION HOSE INC. / STONE MOUNTAIN, GA	C / FFP	NAVSUP, GLS	Apr 2019	Sep 2019	200	1,520.00	Y		
1.1.6) F8100 Strong Flex Hose (WW97)	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	May 2020	Nov 2020	225	1,551.11	Y		
1.1.7) F8100 Igniter (TH01)		2015	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Jan 2015	Jun 2015	504	545.63	Y		Oct 2014
1.1.7) F8100 Igniter (TH01)		2016	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Apr 2016	Sep 2016	550	572.73	Y		Jan 2016
1.1.7) F8100 Igniter (TH01)		2017	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Feb 2018	Jul 2018	504	678.37	Y		
1.1.7) F8100 Igniter (TH01)		2018	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Sep 2018	Feb 2019	504	712.29	Y		
1.1.7) F8100 Igniter (TH01)		2019	Pacific Scientific / Chandler, AZ	C / FFP	NAVSUP, GLS	Jun 2019	Nov 2019	600	725.93	Y		
1.1.7) F8100 Igniter (TH01)	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	Jun 2020	Nov 2020	700	740.74	Y		
1.1.8) F8100 Propellant (WW98)		2015	ALLIANT TECH / ELKTON, MD	C / FFP	NAVSUP, GLS	May 2015	Dec 2015	1,000	1,840.00	Y		Jan 2015
1.1.8) F8100 Propellant (WW98)		2016	ALLIANT TECH FY16 / ELKTON, MD	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	500	1,932.00	Y		Oct 2015
1.1.8) F8100 Propellant (WW98)		2018	ALLIANT TECH / ELKTON, MD	C / FFP	NAVSUP, GLS	Nov 2017	Jun 2018	1,000	1,810.71	Y		
1.1.8) F8100 Propellant (WW98)		2019	ALLIANT TECH / ELKTON, MD	C / FFP	NAVSUP, GLS	Nov 2018	Jun 2019	400	1,846.00	Y		
1.1.8) F8100 Propellant (WW98)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Mar 2020	Sep 2020	700	1,883.08	Y		
1.1.9) F8100 Scuttle Valve (SW94)		2015	Cartridge Actuated Devices / Fairfield, NJ	C / FFP	NAVSUP, GLS	Nov 2015	Jul 2016	30	966.67	Y		May 2015
1.1.9) F8100 Scuttle Valve (SW94)		2016	Cartridge Actuated Devices FY16 / Fairfield, NJ	C / FFP	NAVSUP, GLS	Jan 2016	Jun 2016	30	1,000.00	Y		Oct 2015
1.1.9) F8100 Scuttle Valve (SW94)		2017	Cartridge Actuated Devices / Fairfield, NJ	C / FFP	NAVSUP, GLS	Jan 2018	Sep 2018	84	999.40	Y		
1.1.9) F8100 Scuttle Valve (SW94)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Apr 2020	Sep 2020	36	1,055.56	Y		
1.1.10) F8100 Sub Wire Coil (TW92)		2015	Entwistle Company / Hudson, MA	C / FFP	NAVSUP, GLS	Jan 2015	Jun 2015	600	3,770.00	Y		Oct 2014
1.1.10) F8100 Sub Wire Coil (TW92)		2016	Eagle Pitcher Technologies / Joplin, MO	C / FFP	NAVSUP, GLS	May 2016	Nov 2016	500	3,986.00	Y		Jan 2016
1.1.10) F8100 Sub Wire Coil (TW92)		2017	Entwistle Company / Hudson, MA	C / FFP	NAVSUP, GLS	Sep 2017	Feb 2018	500	3,806.19	Y		
1.1.10) F8100 Sub Wire Coil (TW92)		2018	Entwistle Company / Hudson, MA	C / FFP	NAVSUP, GLS	Jul 2018	Dec 2018	625	3,996.50	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
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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
1.1.10) F8100 Sub Wire Coil (TW92)		2019	UNKNOWN / NAVSUP GLS	C / FFP	NAVSUP, GLS	Jun 2019	Jan 2020	600	4,076.80	Y		
1.1.10) F8100 Sub Wire Coil (TW92)	✓	2020	UNKNOWN / NAVSUP GLS	C / FFP	NAVSUP-WSS	Jun 2020	Jan 2021	700	4,158.40	Y		
1.1.11) F8100 Torpedo Wire Coil (SW83)		2015	ENTWISTLE / HUDSON, MA	C / FFP	NAVSUP, GLS	Jan 2015	Jun 2015	500	4,652.00	Y		Oct 2014
1.1.11) F8100 Torpedo Wire Coil (SW83)		2018	ENTWISTLE / HUDSON, MA	C / FFP	NAVSUP-WSS	Jul 2018	Dec 2018	550	6,191.81	Y		
1.1.11) F8100 Torpedo Wire Coil (SW83)		2019	TBD / TBD	C / FFP	NAVSUP, GLS	Jun 2019	Dec 2019	600	6,316.00	Y		Oct 2018
1.1.11) F8100 Torpedo Wire Coil (SW83)	✓	2020	TBD / TBD	C / FFP	NAVSUP-WSS	Jun 2020	Dec 2020	700	6,442.00	Y		
1.1.14) F8100 Crossover Batteries (CWRG)		2015	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Aug 2015	Jan 2016	400	2,742.50	Y		May 2015
1.1.14) F8100 Crossover Batteries (CWRG)		2017	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Oct 2016	Mar 2017	700	2,566.74	Y		
1.1.14) F8100 Crossover Batteries (CWRG)		2018	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Oct 2017	Mar 2018	625	2,695.08	Y		
1.1.14) F8100 Crossover Batteries (CWRG)		2019	EAGLEPICHER TECH / JOPLIN, MO	C / FFP	NAVSUP, GLS	Mar 2019	Aug 2019	600	2,748.80	Y		
1.1.14) F8100 Crossover Batteries (CWRG)	✓	2020	UNKNOWN / NAVSUP, GLS	C / FFP	NAVSUP-WSS	Mar 2020	Aug 2020	700	2,803.20	Y		
1.1.15) F8100 Sonobuoys		2015	UNDERSEA SENSOR SYSTEMS INC / COLUMBIA CITY, IN	C / FFP	NUWC, KEYPORT	May 2015	Nov 2015	96	2,251.00	Y		Feb 2015
1.1.19) F8100 Deep Proofer Kits 1		2015	Ordnance Technology Service Inc. / NUWC, Newport	C / FFP	NUWC, NEWPORT	Oct 2015	Mar 2016	150	2,460.00	Y		May 2015
1.1.19) F8100 Deep Proofer Kits 1		2016	Ordnance Technology Service Inc. / NUWC, Newport	C / FFP	NUWC, NEWPORT	Jan 2016	Jun 2016	120	2,533.33	Y		Oct 2015
1.1.20) F8100 Deep Proofer Kits 2		2015	Ordnance Technology Service Inc. / NUWC, Newport	C / FFP	NUWC, NEWPORT	Jan 2015	Jun 2015	150	3,500.00	Y		Oct 2014
1.1.21) F8100 Short Wire Coils (CWRT)		2015	Entwistle Company / Hudson, MA	C / FFP	NAVSUP, GLS	Nov 2015	Mar 2016	650	2,741.54	Y		Jun 2015
1.1.21) F8100 Short Wire Coils (CWRT)		2016	Eagle Pitcher Technologies / Joplin, MO	C / FFP	NAVSUP, GLS	Jul 2016	Dec 2016	550	4,210.91	Y		Dec 2015
1.1.21) F8100 Short Wire Coils (CWRT)		2017	Eagle Pitcher Technologies / Joplin, MO	C / FFP	NAVSUP, GLS	Jan 2018	Jun 2018	400	5,692.50	Y		
1.1.22) F8100 Replacement Nose Arrays		2016	NORTHROP GRUMMAN SYSTEMS CORPORATION / NEWPORT	C / FFP	NUWC, NEWPORT	Mar 2017	Nov 2017	50	229,520.00	Y		Oct 2015
1.1.23) F8100 WES Expansion Box		2019	TBD / TBD	C / FFP	NAVSEA	Jun 2019	Jun 2020	230	14,534.78	Y		

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3301 / Torpedo Support Equipment	Item Number / Title [DODIC]: 3 / Heavyweight Torpedo Support Equipment

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.23) F8100 WES Expansion Box	✓	2020	TBD / TBD	C / FFP	NAVSEA	Jun 2020	Jun 2021	230	14,826.09	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 3 / Heavyweight Torpedo Support Equipment

Cost Elements (Units in Each)							Fiscal Year 2014												Fiscal Year 2015												BALANCE
										Calendar Year 2014												Calendar Year 2015									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	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) F8100 Guidance and Control Assembly																															
	1	2014	NAVY	47	0	47										A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
							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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 3 / Heavyweight Torpedo Support Equipment

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
							Calendar Year 2016												Calendar Year 2017												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) F8100 Guidance and Control Assembly																															
	1	2014	NAVY	47	0	47	-	-	-	-	-	-	-	-	-	10	10	10	10	7											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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 3 / Heavyweight Torpedo Support Equipment

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) F8100 Guidance and Control Assembly																															
	1	2014	NAVY	47	47	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 3 / Heavyweight Torpedo Support Equipment

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) F8100 Guidance and Control Assembly																															
	1	2014	NAVY	47	47	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	**P-1 Line Item Number / Title:** 3301 / Torpedo Support Equipment	**Item Number / Title [DODIC]:** 3 / Heavyweight Torpedo Support Equipment

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	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-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 3: Support Equipment	**P-1 Line Item Number / Title:** 3302 / ASW Range Support

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	51.873	3.864	3.872	0.000	3.890	3.890	4.045	4.118	4.210	4.291	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	51.873	3.864	3.872	0.000	3.890	3.890	4.045	4.118	4.210	4.291	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**51.873**	**3.864**	**3.872**	**0.000**	**3.890**	**3.890**	**4.045**	**4.118**	**4.210**	**4.291**	**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:

FY 2020 funding totals include $0.0M for Base and $3.89M for Overseas Contingency Operations (OCO); of which $3.89M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Anti-Submarine Warfare (ASW) Range program provides test and training tracking equipment for both Contiguous United States (CONUS) and Outside Contiguous United States (OCONUS). This equipment is used for ground truth tracking of participants during Fleet training exercises and torpedo firings and directly supports reconstruction and analysis for Undersea Warfare (USW) proficiency assessment and test, evaluation & analysis. The infrastructure supported includes: Southern California Offshore Range (SCORE), Barking Sands Tactical Underwater Range/Barking Sands Underwater Range Extension (BARSTUR/BSURE), Pacific Northwest Range Complex (Dabob and Nanoose), Atlantic Undersea Test and Evaluation Center (AUTEC), Portable Offshore Training Range (POTR), Portable Undersea Training Range (PUTR) and other portable capabilities abroad in support of Forward Deployed Naval Forces (FDNF) training requirements.

[P5 / F4001 - UTRE/PINGER EXERCISE EQUIPMENT]: Underwater tracking equipment is placed in weapons and other underwater vehicles for tracking during training and Test and Evaluation (T&E) exercises, and to ensure safe operation and movement of all craft and weapons on fixed and portable ranges for the Underwater Tracking Range Equipment (UTRE)/Pinger program. Funding is used to procure equipment for T&E exercises in addition to improvement and modernization projects.

[P5 / F4006 - STATIONARY TARGET EQUIPMENT MK28]: The stationary target equipment includes the MK 28 Targets and all equipment used for conducting Service Weapons Tests (SWT) on in-service and advanced war-shot torpedoes. The SWT is the only test the Navy has to verify the explosive train of lightweight and heavyweight torpedoes. Funding is used to procure target systems and equipment for SWT in addition to improvement and modernization projects.

[P5 / F4830 - PRODUCTION ENGINEERING - UTRE]: Funds for production engineering efforts performed by a field activity or contractor during the production phase of these projects.

[P5 / F4850 - PRODUCT IMPROVEMENT - UTRE]: Product improvement for fixed and portable range and fleet equipment.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 3: Support Equipment	**P-1 Line Item Number / Title:** 3302 / ASW Range Support	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / ASW Range Support [F4001]				- / 51.873	- / 3.864	- / 3.872	- / 0.000	- / 3.890	- / 3.890
P-40	**Total Gross/Weapon System Cost**				**- / 51.873**	**- / 3.864**	**- / 3.872**	**- / 0.000**	**- / 3.890**	**- / 3.890**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
The Anti-Submarine Warfare (ASW) Range program provides underwater tracking equipment and fleet equipment for use on underwater fixed and portable ranges.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 3	P-1 Line Item Number / Title: 3302 / ASW Range Support	Item Number / Title [DODIC]: 1 / ASW Range Support [F4001]
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	51.873	3.864	3.872	0.000	3.890	3.890
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	51.873	3.864	3.872	0.000	3.890	3.890
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**51.873**	**3.864**	**3.872**	**0.000**	**3.890**	**3.890**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) F4001 - UTRE/ PINGER EXERCISE EQUIPMENT	-	-	25.024	-	-	1.824	-	-	1.832	-	-	0.000	-	-	1.790	-	-	1.790
1.1.2) F4006 - STATIONARY TARGET EQUIPMENT MK28	-	-	15.510	-	-	1.340	-	-	1.340	-	-	0.000	-	-	1.400	-	-	1.400
Subtotal: Recurring Cost	-	-	*40.534*	-	-	*3.164*	-	-	*3.172*	-	-	*0.000*	-	-	*3.190*	-	-	*3.190*
Subtotal: Hardware Cost	**-**	**-**	***40.534***	**-**	**-**	***3.164***	**-**	**-**	***3.172***	**-**	**-**	***0.000***	**-**	**-**	***3.190***	**-**	**-**	***3.190***
Support Cost																		
2.1) F4830 - PRODUCTION ENGINEERING - UTRE	-	-	6.142	-	-	0.350	-	-	0.350	-	-	0.000	-	-	0.350	-	-	0.350
2.2) F4850 - PRODUCT IMPROVEMENT - UTRE	-	-	5.197	-	-	0.350	-	-	0.350	-	-	0.000	-	-	0.350	-	-	0.350
Subtotal: Support Cost	**-**	**-**	***11.339***	**-**	**-**	***0.700***	**-**	**-**	***0.700***	**-**	**-**	***0.000***	**-**	**-**	***0.700***	**-**	**-**	***0.700***
Gross/Weapon System Cost	**-**	**-**	**51.873**	**-**	**-**	**3.864**	**-**	**-**	**3.872**	**-**	**-**	**0.000**	**-**	**-**	**3.890**	**-**	**-**	**3.890**

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 4: Destination Transportation	**P-1 Line Item Number / Title:** 2410 / First Destination Transportation

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	25.835	3.961	3.726	0.000	3.803	3.803	3.881	3.959	4.037	4.119	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	25.835	3.961	3.726	0.000	3.803	3.803	3.881	3.959	4.037	4.119	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**25.835**	**3.961**	**3.726**	**0.000**	**3.803**	**3.803**	**3.881**	**3.959**	**4.037**	**4.119**	**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:

FY 2020 funding totals include $0.0M for Base and $3.803M for Overseas Contingency Operations (OCO); of which $3.803M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

First Destination Transportation (FDT). FDT delivers material from a procurement source to the first point of use or storage which may be in the Continental United States or overseas. The procurement source may be a supplier outside of the Department of Defense (DoD) supply system or a DoD activity which fabricates new material. FDT also includes transportation from point of origin to point of use or storage when Navy-owned material or equipment is provided to a contractor incident to a Research and Development project or a system/equipment acquisition or modification.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 03: Torpedoes and Related Equipment / BSA 4: Destination Transportation	**P-1 Line Item Number / Title:** 2410 / First Destination Transportation	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / FIRST DESTINATION TRANSPORTATION (FDT)				- / 25.835	- / 3.961	- / 3.726	- / 0.000	- / 3.803	- / 3.803
P-40	**Total Gross/Weapon System Cost**				**- / 25.835**	**- / 3.961**	**- / 3.726**	**- / 0.000**	**- / 3.803**	**- / 3.803**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 funds are required for transportation costs for shipments of WPN-procured weapons related equipment and material to the first point of use or storage, or as Government Furnished Equipment/ Government Furnished Material (GFE/GFM) provided to a contractor incident to a WPN-funded system/equipment acquisition or modification.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 03 / 4	**P-1 Line Item Number / Title:** 2410 / First Destination Transportation	**Item Number / Title [DODIC]:** 1 / FIRST DESTINATION TRANSPORTATION (FDT)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	25.835	3.961	3.726	0.000	3.803	3.803
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	25.835	3.961	3.726	0.000	3.803	3.803
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**25.835**	**3.961**	**3.726**	**0.000**	**3.803**	**3.803**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Support Cost																		
1.1) First Destination Transportation-NAVSUP	-	-	11.034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2) First Destination Transportation - NAVAIR	-	-	6.868	-	-	1.778	-	-	1.679	-	-	0.000	-	-	1.716	-	-	1.716
1.3) First Destination Transportation - NAVSEA	-	-	3.508	-	-	0.908	-	-	0.915	-	-	0.000	-	-	0.933	-	-	0.933
1.4) First Destination Transportation - SSP	-	-	4.425	-	-	1.275	-	-	1.132	-	-	0.000	-	-	1.154	-	-	1.154
Subtotal: Support Cost	***-***	***-***	***25.835***	***-***	***-***	***3.961***	***-***	***-***	***3.726***	***-***	***-***	***0.000***	***-***	***-***	***3.803***	***-***	***-***	***3.803***
Gross/Weapon System Cost	**-**	**-**	**25.835**	**-**	**-**	**3.961**	**-**	**-**	**3.726**	**-**	**-**	**0.000**	**-**	**-**	**3.803**	**-**	**-**	**3.803**

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 1: Guns and Gun Mounts	**P-1 Line Item Number / Title:** 4129 / Small Arms and Weapons

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	114.267	12.832	16.607	0.000	14.797	14.797	11.915	12.371	12.607	12.858	-	208.254
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	114.267	12.832	16.607	0.000	14.797	14.797	11.915	12.371	12.607	12.858	-	208.254
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**114.267**	**12.832**	**16.607**	**0.000**	**14.797**	**14.797**	**11.915**	**12.371**	**12.607**	**12.858**	**-**	**208.254**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	0.000	0.046	0.046	0.025	-	-	-	-	0.071
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $14.797M for Overseas Contingency Operations (OCO); of which $14.797M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This line item procures the initial issue of weapons, modernization, standardization and stock replenishment of a wide variety of Small Arms and weapons (caliber .50 and below) to meet Small Arms allowances and inventory objectives, including required gun mounts and associated support components.

This line also provides sufficient types and quantities of weapons to support training, afloat security forces and shore missions of approximately 1,300 ship/ashore activities Navy-wide including the Naval Mobile Construction Battalions, Naval Construction Force Support Units, Construction Battalion Maintenance Units, Mobile Security Force, Marine Corps Security Force Battalion and Master at Arms. Quantities of weapons procured with the above funding are to meet Small Arms allowances and inventory objectives.

This line item also procures a range of weapons and small arms considered service common equipment for Naval Special Warfare (NSW) such as assault and sniper rifles, handguns, machine guns, mortar firing systems, and a variety of components including gun sights, gun mounts, combat and thermal optics and other related equipment. This funding supports the inventory objectives and service-common Small Arms allowances for NSW.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 1: Guns and Gun Mounts	**P-1 Line Item Number / Title:** 4129 / Small Arms and Weapons

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / EXPEDITIONARY WARFARE	P-5a			- / 57.377	- / 6.763	- / 10.454	- / 0.000	- / 9.095	- / 9.095
P-5	2 / SURFACE WARFARE	P-5a			- / 47.583	- / 6.069	- / 6.153	- / 0.000	- / 5.702	- / 5.702
P-5	3 / STRATEGIC SYSTEMS PROGRAMS (SSP)	P-5a			- / 9.307	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 114.267**	**- / 12.832**	**- / 16.607**	**- / 0.000**	**- / 14.797**	**- / 14.797**

*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:

Funding in FY 2020 supports meeting Navy inventory objectives, including the XM17 Modular Handgun System (MHS) service pistol and the 5.56 carbine. Funding also supports Naval Special Warfare efforts supporting the NSW service common inventory allowance and includes the phased replacement of M16 rifles to the M4A1N 5.56mm carbine, the replacement of the MK14 series 7.62x51MM enhanced battle rifle (EBR) with the Compact Semi-automatic Sniper System (CSASS), and M224 60MM Mortars. Funding supports procuring 213 M3E1, 56 MK 48, 935 M4A1 5.56MM Carbine, 10,000 MHS, XM17, 41 60MM Mortars (M224) associated transportation, and production engineering for Expeditionary Warfare. Funding supports procuring 2,500 M4A1 5.56MM Carbine, 10,000 MHS, XM17, 100 M2A1, and 400 MK 87-M4 UPPER and production engineering for Surface Warfare.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	P-1 Line Item Number / Title: 4129 / Small Arms and Weapons	Item Number / Title [DODIC]: 1 / EXPEDITIONARY WARFARE
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	57.377	6.763	10.454	0.000	9.095	9.095
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	57.377	6.763	10.454	0.000	9.095	9.095
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**57.377**	**6.763**	**10.454**	**0.000**	**9.095**	**9.095**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - EXPEDITIONARY WARFARE Cost																		
Recurring Cost																		
1.1.1) SSAM/MK50(†)	1,098K	3	3.294	284,000.00	6	1.704	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) MK48(†)	8,080.00	25	0.202	9,000.00	60	0.540	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) MK48 REFURB(†)	5,942.86	35	0.208	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) M107 .50 CAL SNIPER RIFLE(†)	12,500.00	2	0.025	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) MOSS 500A1 SHOT GUN	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	500.00	250	0.125	500.00	250	0.125
1.1.6) M11 9MM PISTOL(†)	700.00	40	0.028	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.7) M9 9MM PISTOL(†)	21,876.40	89	1.947	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.8) MK44 7.62MM MINIGUN(†)	1,218K	2	2.436	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.9) MK44 REFURB(†)	40,666.67	3	0.122	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.10) EXPEDITIONARY MOUNTS(†)	2,750.00	40	0.110	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.11) MK-19 MOD 3 40MM GMG(†)	17,222.22	9	0.155	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	P-1 Line Item Number / Title: 4129 / Small Arms and Weapons	Item Number / Title [DODIC]: 1 / EXPEDITIONARY WARFARE
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1.1.12) M4A1 5.56MM CARBINE(†)	14,926.10	636	9.493	-	-	0.000	750.00	922	0.692	-	-	0.000	750.00	375	0.281	750.00	375	0.281
1.1.14) M240B 7.62MM MG(†)	60,984.62	130	7.928	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.15) M2HB .50 CAL MG	-	-	21.640	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.16) M2A1(†)	14,972.60	146	2.186	14,000.00	95	1.330	14,000.00	35	0.490	-	-	0.000	-	-	0.000	-	-	0.000
1.1.17) M2A1 COMPONENTS	-	-	7.277	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.18) M18 MHS, XM17(†)	-	-	0.000	-	-	0.000	200.00	2,220	0.444	-	-	0.000	200.00	2,110	0.422	200.00	2,110	0.422
1.1.19) CSASS	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	8,500.00	140	1.190	8,500.00	140	1.190
1.1.20) M224 60MM MORTAR(†) (1)	-	-	0.000	99,830.00	1	0.100	70,000.00	51	3.570	-	-	0.000	70,000.00	25	1.750	70,000.00	25	1.750
1.1.21) M252 81MM MORTAR(†) (2)	-	-	0.000	50,454.55	55	2.775	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.24) M3E1 Carl Gustaf(†)	-	-	0.000	-	-	0.000	72,000.00	65	4.680	-	-	0.000	72,000.00	68	4.896	72,000.00	68	4.896
Subtotal: Recurring Cost	-	-	*57.051*	-	-	*6.449*	-	-	*9.876*	-	-	*0.000*	-	-	*8.664*	-	-	*8.664*
Subtotal: Hardware - EXPEDITIONARY WARFARE Cost	**-**	**-**	***57.051***	**-**	**-**	***6.449***	**-**	**-**	***9.876***	**-**	**-**	***0.000***	**-**	**-**	***8.664***	**-**	**-**	***8.664***
Hardware - TRANSPORTATION ACCOUNT CODE (TAC) Cost																		
Recurring Cost																		
2.1.1) SMALL ARMS TAC	-	-	0.010	-	-	0.094	-	-	0.100	-	-	0.000	-	-	0.100	-	-	0.100
Subtotal: Recurring Cost	-	-	*0.010*	-	-	*0.094*	-	-	*0.100*	-	-	*0.000*	-	-	*0.100*	-	-	*0.100*
Subtotal: Hardware - TRANSPORTATION ACCOUNT CODE (TAC) Cost	**-**	**-**	***0.010***	**-**	**-**	***0.094***	**-**	**-**	***0.100***	**-**	**-**	***0.000***	**-**	**-**	***0.100***	**-**	**-**	***0.100***
Support - EXPEDITIONARY WARFARE Cost																		
3.1) Production Engineering	-	-	0.316	-	-	0.220	-	-	0.478	-	-	0.000	-	-	0.331	-	-	0.331
Subtotal: Support - EXPEDITIONARY WARFARE Cost	**-**	**-**	***0.316***	**-**	**-**	***0.220***	**-**	**-**	***0.478***	**-**	**-**	***0.000***	**-**	**-**	***0.331***	**-**	**-**	***0.331***
Gross/Weapon System Cost	**-**	**-**	**57.377**	**-**	**-**	**6.763**	**-**	**-**	**10.454**	**-**	**-**	**0.000**	**-**	**-**	**9.095**	**-**	**-**	**9.095**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	**P-1 Line Item Number / Title:** 4129 / Small Arms and Weapons	**Item Number / Title [DODIC]:** 1 / EXPEDITIONARY WARFARE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(†) indicates the presence of a P-5a

Footnotes:

(1) Unit cost difference is due to Economic Order Quantity.

(2) Unit cost difference is due to Economic Order Quantity.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	P-1 Line Item Number / Title: 4129 / Small Arms and Weapons	Item Number / Title [DODIC]: 1 / EXPEDITIONARY WARFARE

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) SSAM/MK50		2017	Kongsberg Protech / Johnstown, PA	C / FFP	PICATINNY	May 2017	Jun 2017	3	298,039.00	N		Jan 2017
1.1.1) SSAM/MK50		2018	Kongsberg Protech / Johnstown, PA	C / FFP	PICATINNY	Mar 2018	Aug 2018	6	284,000.00	N		Jan 2018
1.1.2) MK48		2017	NSWC / CRANE, IN	C / IDDQ	NSWC CRANE	Apr 2017	Sep 2017	25	8,075.00	N		Jan 2017
1.1.2) MK48		2018	NSWC / CRANE, IN	C / IDDQ	NSWC CRANE	Apr 2018	Sep 2018	60	9,000.00	N		Jan 2018
1.1.3) MK48 REFURB		2017	NSWC / CRANE, IN	WR	NSWC CRANE	Jun 2017	Nov 2017	35	5,930.00	N		
1.1.4) M107 .50 CAL SNIPER RIFLE		2017	BARRETT / CHRISTIANA, TN	C / IDDQ	NSWC CRANE	Jun 2017	Jun 2017	2	12,500.00	N		Oct 2016
1.1.6) M11 9MM PISTOL		2017	SIGARMS / EXTER, NH	C / FFP	TACOM LCMC	Jun 2017	Jan 2018	40	695.00	N		Oct 2016
1.1.7) M9 9MM PISTOL		2016	BERETTA / ACCOKEEK, MD	C / FFP	ROCK ISLAND ARSENAL	Jun 2016	Oct 2016	89	685.39	N		Jan 2016
1.1.8) MK44 7.62MM MINIGUN		2017	DILLION / SCOTTSDALE, AZ	C / FFP	NSWC CRANE	Mar 2017	Jul 2017	2	72,500.00	N		Jan 2016
1.1.9) MK44 REFURB		2017	NSWC / CRANE, IN	WR	NSWC CRANE	Mar 2017	Aug 2017	3	40,800.00	N		
1.1.10) EXPEDITIONARY MOUNTS		2017	FRASER / LEXINGTON, MI	C / IDIQ	NSWC CRANE	Jun 2017	Jul 2017	40	2,748.00	N		Jan 2017
1.1.11) MK-19 MOD 3 40MM GMG		2017	FN / COLUMBIA, SC	C / IDIQ	PICATINNY	Jun 2017	Jun 2019	9	17,206.00	N		Oct 2016
1.1.12) M4A1 5.56MM CARBINE		2016	COLT / HARTFORD, CT	C / FFP	TACOM LCMC	Mar 2016	Apr 2017	374	1,451.87	N		Oct 2015
1.1.12) M4A1 5.56MM CARBINE		2017	COLT / HARTFORD, CT	C / FFP	TACOM LCMC	Aug 2017	Sep 2018	262	800.00	N		May 2017
1.1.12) M4A1 5.56MM CARBINE		2019	COLT / HARTFORD, CT	C / FFP	TACOM LCMC	Jan 2019	Feb 2020	922	750.00	N		Oct 2018
1.1.14) M240B 7.62MM MG		2016	FN / COLUMBIA, SC	C / IDIQ	TACOM LCMC	Dec 2015	Jan 2018	73	6,392.86	N		Oct 2015
1.1.14) M240B 7.62MM MG		2017	FN / COLUMBIA, SC	C / IDIQ	TACOM LCMC	Jun 2017	Jul 2019	57	7,700.00	N		Oct 2016
1.1.16) M2A1		2017	US Ordinance / McCarran, NV	C / FFP	PICATINNY	Dec 2017	Dec 2018	146	14,975.00	N		Oct 2017
1.1.16) M2A1		2018	US Ordinance / McCarran, NV	C / FFP	PICATINNY	Dec 2017	Dec 2018	95	14,000.00	N		Oct 2017
1.1.16) M2A1		2019	US Ordinance / McCarran, NV	C / FFP	PICATINNY	Oct 2018	Oct 2019	35	14,000.00	N		
1.1.18) M18 MHS, XM17		2019	SIGARMS / EXTER, NH	C / FFP	PICATINNY	Dec 2018	Dec 2018	2,220	200.00	N		Oct 2018
1.1.18) M18 MHS, XM17	✓	2020	SIGARMS / EXTER, NH	C / FFP	PICATINNY	Oct 2019	Oct 2019	2,110	200.00	N		
1.1.20) M224 60MM MORTAR		2018	Connectec Co. Inc / Irvin, CA	C / IDIQ	PICATINNY	Jan 2018	Jan 2018	1	99,830.00	Y		Oct 2017
1.1.20) M224 60MM MORTAR		2019	Connectec Co. Inc / Irvin, CA	C / IDIQ	PICATINNY	Jan 2019	Jan 2019	29	70,000.00	Y		Oct 2018
1.1.20) M224 60MM MORTAR	✓	2019	Connectec Co. Inc / Irvin, CA	C / IDIQ	PICATINNY	Jan 2019	Jan 2019	22	70,000.00	N		Oct 2018
1.1.20) M224 60MM MORTAR	✓	2020	Connectec Co. Inc / Irvin, CA	C / IDIQ	PICATINNY	Oct 2019	Oct 2019	25	70,000.00	N		
1.1.21) M252 81MM MORTAR		2018	Connectec Co. Inc / Irvin, CA	C / FFP	PICATINNY	Jan 2018	Jan 2018	25	51,000.00	Y		Oct 2017
1.1.21) M252 81MM MORTAR	✓	2018	Connectec Co. Inc / Irvin, CA	C / FFP	PICATINNY	Jan 2018	Jan 2018	30	50,000.00	Y		Oct 2017
1.1.24) M3E1 Carl Gustaf		2019	Saab Bofors Dynamics / Sweden	C / CPFF	PICATINNY	Dec 2018	Jun 2019	65	72,000.00	Y		
1.1.24) M3E1 Carl Gustaf	✓	2020	Saab Bofors Dynamics / Sweden	C / CPFF	PICATINNY	Dec 2019	Jun 2020	68	72,000.00	Y		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	**P-1 Line Item Number / Title:** 4129 / Small Arms and Weapons	**Item Number / Title [DODIC]:** 2 / SURFACE WARFARE
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	47.583	6.069	6.153	0.000	5.702	5.702
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	47.583	6.069	6.153	0.000	5.702	5.702
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**47.583**	**6.069**	**6.153**	**0.000**	**5.702**	**5.702**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - SURFACE WARFARE Cost																		
Recurring Cost																		
1.1.1) MK44 REFURB(†)	41,000.00	1	0.041	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) MOSS 500A1 12G SHOTGUN	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	500.00	750	0.375	500.00	750	0.375
1.1.6) M4A1 5.56MM CARBINE(†)	14,342.03	345	4.948	750.00	1,000	0.750	750.00	500	0.375	-	-	0.000	750.00	635	0.476	750.00	635	0.476
1.1.8) M240B 7.62MM MG(†)	75,653.74	361	27.311	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.9) M9 9MM PISTOL(†)	9,717.39	230	2.235	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.10) M2HB REFURB/M2A1 QCB CONVO KITS(†)	5,072.20	277	1.405	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.11) M2A1 COMPONENTS	50,840.00	200	10.168	14,000.00	167	2.338	14,000.00	207	2.898	-	-	0.000	14,000.00	130	1.820	14,000.00	130	1.820
1.1.12) M18 MHS, XM17(†)	-	-	0.000	200.00	14,000	2.800	200.00	12,900	2.580	-	-	0.000	200.00	12,900	2.580	200.00	12,900	2.580
Subtotal: Recurring Cost	-	-	*46.108*	-	-	*5.888*	-	-	*5.853*	-	-	*0.000*	-	-	*5.251*	-	-	*5.251*
Subtotal: Hardware - SURFACE WARFARE Cost	**-**	**-**	***46.108***	**-**	**-**	***5.888***	**-**	**-**	***5.853***	**-**	**-**	***0.000***	**-**	**-**	***5.251***	**-**	**-**	***5.251***
Support - SURFACE WARFARE Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	P-1 Line Item Number / Title: 4129 / Small Arms and Weapons	Item Number / Title [DODIC]: 2 / SURFACE WARFARE
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
2.2) PRODUCTION ENGINEERING	-	-	1.475	-	-	0.181	-	-	0.300	-	-	0.000	-	-	0.451	-	-	0.451
Subtotal: Support - SURFACE WARFARE Cost	***-***	***-***	***1.475***	***-***	***-***	***0.181***	***-***	***-***	***0.300***	***-***	***-***	***0.000***	***-***	***-***	***0.451***	***-***	***-***	***0.451***
Gross/Weapon System Cost	**-**	**-**	**47.583**	**-**	**-**	**6.069**	**-**	**-**	**6.153**	**-**	**-**	**0.000**	**-**	**-**	**5.702**	**-**	**-**	**5.702**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	P-1 Line Item Number / Title: 4129 / Small Arms and Weapons	Item Number / Title [DODIC]: 2 / SURFACE WARFARE

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) MK44 REFURB		2017	NSWC / CRANE, IN	WR	NSWC CRANE	Mar 2017	Mar 2017	1	40,800.00	N		
1.1.6) M4A1 5.56MM CARBINE		2016	COLT / HARTFORD, CT	C / FFP	TACOM LCMC	May 2017	Jun 2018	345	1,451.87	N		Oct 2016
1.1.6) M4A1 5.56MM CARBINE		2018	COLT / HARTFORD, CT	C / FFP	TACOM LCMC	Jan 2018	Feb 2019	1,000	750.00	N		Oct 2017
1.1.6) M4A1 5.56MM CARBINE		2019	COLT / HARTFORD, CT	C / FFP	TACOM LCMC	Jan 2019	Feb 2020	500	750.00	N		Oct 2018
1.1.8) M240B 7.62MM MG		2016	FN / COLUMBIA, SC	C / IDIQ	TACOM LCMC	Dec 2015	Jan 2018	192	6,392.86	N		Oct 2015
1.1.8) M240B 7.62MM MG		2017	FN / COLUMBIA, SC	C / IDIQ	PICATINNY	Jun 2017	Jul 2019	169	7,700.00	N		Oct 2016
1.1.9) M9 9MM PISTOL		2016	BERETTA / ACCOKEEK, MD	C / FFP	TACOM LCMC	Jun 2016	Oct 2016	230	685.39	N		Jan 2016
1.1.10) M2HB REFURB/M2A1 QCB CONVO KITS		2017	NSWC / CRANE, IN	WR	NSWC CRANE	Jun 2017	Oct 2017	277	5,073.00	N		
1.1.12) M18 MHS, XM17		2018	SIGARMS / EXTER, NH	C / FFP	PICATINNY	Dec 2017	Dec 2017	14,000	200.00	N		Oct 2017
1.1.12) M18 MHS, XM17		2019	SIGARMS / EXTER, NH	C / FFP	PICATINNY	Dec 2018	Dec 2018	12,900	200.00	N		Oct 2018
1.1.12) M18 MHS, XM17	✓	2020	SIGARMS / EXTER, NH	C / FFP	PICATINNY	Dec 2019	Dec 2019	12,900	200.00	N		Oct 2019

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	**P-1 Line Item Number / Title:** 4129 / Small Arms and Weapons	**Item Number / Title [DODIC]:** 3 / STRATEGIC SYSTEMS PROGRAMS (SSP)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	9.307	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	9.307	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**9.307**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - STRATEGIC SYSTEMS PROGRAMS Cost																		
Recurring Cost																		
1.1.1) M4A1 Supressor(†)	1,120.19	1,040	1.165	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) M4A1 Accessories	-	-	0.196	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) AN/PVQ-31B (RCOM4)(†)	888.83	1,889	1.679	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) AN/PEQ-16(†)	1,856.54	1,889	3.507	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) M240B Machine Gun Accessories	-	-	0.091	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) M9A1 Pistol Accessories/ Components	-	-	0.020	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.7) AN/PVS-14(†)	3,752.84	352	1.321	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.8) AN/PVS-14 Conversion Kits	-	-	0.039	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.9) AN/PAS-13G (V) 1(†)	8,158.23	158	1.289	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*9.307*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - STRATEGIC SYSTEMS PROGRAMS Cost	**-**	**-**	***9.307***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	**P-1 Line Item Number / Title:** 4129 / Small Arms and Weapons	**Item Number / Title [DODIC]:** 3 / STRATEGIC SYSTEMS PROGRAMS (SSP)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Gross/Weapon System Cost	-	-	9.307	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 1	P-1 Line Item Number / Title: 4129 / Small Arms and Weapons	Item Number / Title [DODIC]: 3 / STRATEGIC SYSTEMS PROGRAMS (SSP)

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) M4A1 Supressor		2017	USMC / Quantico, VA	MIPR	Quantico, VA	May 2017	Jan 2019	1,040	1,120.19	N		
1.1.3) AN/PVQ-31B (RCOM4)		2016	USMC / Quantico, VA	MIPR	Quantico, VA	Jun 2016	Jun 2017	849	872.79	N		
1.1.3) AN/PVQ-31B (RCOM4)		2017	USMC / Quantico, VA	MIPR	Quantico, VA	May 2017	May 2018	1,040	902.03	N		
1.1.4) AN/PEQ-16		2016	USMC / Quantico, VA	MIPR	Quantico, VA	Jun 2016	Jun 2017	849	1,836.74	N		
1.1.4) AN/PEQ-16		2017	USMC / Quantico, VA	MIPR	Quantico, VA	May 2017	May 2018	1,040	1,873.08	N		
1.1.7) AN/PVS-14		2017	USMC / Quantico, VA	MIPR	Quantico, VA	May 2017	May 2018	352	3,752.72	N		
1.1.9) AN/PAS-13G (V) 1		2017	USMC / Quantico, VA	MIPR	Quantico, VA	May 2017	May 2018	158	8,160.31	N		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,624.269	72.698	63.318	0.000	44.126	44.126	37.147	6.462	2.933	2.998	94.881	1,948.832
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,624.269	72.698	63.318	0.000	44.126	44.126	37.147	6.462	2.933	2.998	94.881	1,948.832
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,624.269**	**72.698**	**63.318**	**0.000**	**44.126**	**44.126**	**37.147**	**6.462**	**2.933**	**2.998**	**94.881**	**1,948.832**
(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:

FY 2020 funding totals include $0.0M for Base and $44.126M for Overseas Contingency Operations (OCO); of which $44.126M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Phalanx Close-In Weapon System (CIWS) is an autonomous combat system that searches, detects, tracks (radar and electro-optic), and engages threats with a 20mm Gatling gun capable of firing 4,500 tungsten penetrator rounds per minute. Integral to ship self-defense and the anti-air warfare "defense-in-depth" concept, CIWS provides terminal defense against anti-ship missiles and high-speed aircraft penetrating other fleet defenses. Phalanx CIWS can operate autonomously or be integrated with a ship's combat system.

The Block 1B configuration provides further defense against asymmetric threats such as small, fast surface craft, low slow-flying fixed and rotary-winged aircraft, and unmanned aerial vehicles through the addition of an integrated Forward-Looking Infra-Red (FLIR) sensor. Block 1B also incorporates an Optimized Gun Barrel (OGB) for tighter ordnance dispersion. Enhanced Lethality Cartridges (ELC) can be used with the OGB for improved target penetration.

The CIWS SeaRAM is a CIWS Phalanx Block 1B with the 20mm Gatling gun removed and replaced by an eleven round guide that utilizes the Rolling Airframe Missile (RAM) Block 1A or Block 2 missiles for extended Anti-Ship Missile coverage. The resulting system is designated MK 15 Mod 31/32 CIWS SeaRAM and shares a minimum of 85% hardware and software commonality of the CIWS Phalanx system. CIWS SeaRAM is installed on LCS Independence class and 8 ROTA based DDGs.

[DT6IN/DT8IN]Installation funding includes all planning and execution requirements for ship installations. Planning efforts include Design Service Allocation (DSA) efforts associated with the planning yard ship checks, Ship Installation Drawing (SID) development, installation on-site support and Ship Selected Record (SSR) updates. Execution efforts include shipyard planning, shipyard support services, installation material procurement, and Alteration Installation Team (AIT) efforts. Installations include the Rota DDG SeaRAM installs on DDGs 51,64,71,75,78,79,80 and 84; and the installation efforts also support for the Navy Type Navy Owned (NTNO) Coast Guard WMSLs.

[P5 / DT001 CIWS BLOCK 1B]: As part of the Block 1B Reliability, Maintainability and Availability (RM&A) Roadmap effort, this line is an upgrade/conversion to CIWS incorporating a stabilized thermal imager and an automatic acquisition video tracker that provides the additional capability to engage small, high speed, maneuvering surface craft and low, slow aircraft and helicopters. The thermal imager also improves performance against Anti-Ship Cruise Missiles by providing more accurate angle tracking information to the fire control computer. CIWS Block 1B is scheduled to be installed on the following ship classes: CGs,

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

CVNs, DDGs, LCCs, LHAs, LHDs, LSDs, WMSLs and trainers. The installations will be completed during a limited availability by Shipalt/AIT. The budget also provides for the procurement support costs (e.g., production engineering), development and fielding of future ECPs and ORDALTs, Sensor Upgrade Material, and the SeaRAM on ROTA DDGs and LCS class.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Close-In Wpns Sys (CIWS) Mods				- / 315.538	- / 69.488	- / 55.268	- / 0.000	- / 40.676	- / 40.676
P-3a	1 / Block 1B Baseline 2 Radar Upgrades (ECP/ORDALT)				- / 187.359	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	2 / CIWS Block 1 B (Phalanx CIWS Block 1)				- / 1,121.372	- / 3.210	- / 8.050	- / 0.000	- / 3.450	- / 3.450
P-40	**Total Gross/Weapon System Cost**				**- / 1,624.269**	**- / 72.698**	**- / 63.318**	**- / 0.000**	**- / 44.126**	**- / 44.126**

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Close-In Wpns Sys (CIWS) Mods				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / Block 1B Baseline 2 Radar Upgrades (ECP/ORDALT)				- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 187.359
P-3a	2 / CIWS Block 1 B (Phalanx CIWS Block 1)				- / 9.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 1,145.082
P-40	**Total Gross/Weapon System Cost**				**- / 37.147**	**- / 6.462**	**- / 2.933**	**- / 2.998**	**- / 94.881**	**- / 1,948.832**

*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:

There are 231 U.S. shipboard systems, 4 trainers, 3 Engineering Development Module (EDM)/Periodic Conformance Inspection (PCI) mounts procured in the Program of Record and 8 on DDGs at ROTA. This budget also provides for the procurement and installation of 4 Coast Guard Maritime Security Cutter Large (WMSLs) and 2 systems for CG 68.

This budget provides for the procurement of CIWS Reliability, Maintainability and Availability (RM&A) roadmap that will provide system improvements and allow time between Class "A" overhauls to be extended while still maintaining an acceptable operational availability (Ao). The RM&A Kit #1 improvements include the following: coolant pump with improved impeller, long-life gyros, Transmitter Mode Control Unit (TMCU) improvement, Built-in-Test Equipment (BITE) Control Circuit Card Assembly (CCA), Waveguide Air Dryer System (WADS) piston compressor, WADS water separator, Gun and Ammunition Handling System (GAHS) chuting, gun cradle cable assembly, main cable reliability improvements, and resolver improvements. The RM&A Kit #2 improvements primarily include Higher Reliability Phalanx Thermal Imager (HRPTI). These RM&A improvements will be installed during overhauls or by standalone shipboard Alteration Installation Teams (AIT).

FY 2019 - FY 2022 increase for CRDC (CIWS RAM Defense Capability) to improve sensor capability. The CRDC is fielded aboard CVN class ships. This line provides for Hardware procurement, installation hardware and labor for AIT, ISEA, contractor support and initial ILS support.

FY2020 - FY2024 cancellation of RM&A procurement for Tech Refresh was greater than the procurement of the tech refreshed material. With the removal of funds being greater, this also impacts the CG 68 installation effort in FY22.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Item Number / Title [DODIC]:** 1 / Close-In Wpns Sys (CIWS) Mods
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	315.538	69.488	55.268	0.000	40.676	40.676
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	315.538	69.488	55.268	0.000	40.676	40.676
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**315.538**	**69.488**	**55.268**	**0.000**	**40.676**	**40.676**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - DT001 CIWS BLOCK 1B Cost																		
Recurring Cost																		
1.1.1) Trainer Installation	74,250.00	4	0.297	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) ECP/ORDALT (1)	-	-	36.412	-	-	3.118	-	-	3.179	-	-	0.000	-	-	3.241	-	-	3.241
1.1.3) TRAINER UPGRADE/ CONVERSION	1,908K	4	7.633	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) TRAINER	1,916K	4	7.666	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) BLOCK 1B RM&A ROADMAP (2)	-	-	56.750	-	-	20.266	-	-	23.952	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) GRAY RADOMES	-	-	1.880	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.7) PRODUCTION ENGINEERING (3)	-	-	117.760	-	-	3.784	-	-	3.883	-	-	0.000	-	-	0.000	-	-	0.000
1.1.8) Sensor Upgrades (4)	-	-	51.200	-	-	12.500	-	-	24.254	-	-	0.000	-	-	26.535	-	-	26.535
1.1.9) SeaRAM ROTA DDG	-	-	35.940	-	-	29.820	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.10) CG Modernization (5)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	10.900	-	-	10.900
Subtotal: Recurring Cost	-	-	*315.538*	-	-	*69.488*	-	-	*55.268*	-	-	*0.000*	-	-	*40.676*	-	-	*40.676*
Subtotal: Hardware - DT001 CIWS BLOCK 1B Cost	**-**	**-**	***315.538***	**-**	**-**	***69.488***	**-**	**-**	***55.268***	**-**	**-**	***0.000***	**-**	**-**	***40.676***	**-**	**-**	***40.676***

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4205 / Close-In Wpns Sys (CIWS) Mods	Item Number / Title [DODIC]: 1 / Close-In Wpns Sys (CIWS) Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Gross/Weapon System Cost	-	-	315.538	-	-	69.488	-	-	55.268	-	-	0.000	-	-	40.676	-	-	40.676

Footnotes:

(1) Software BL 2.17 completed and being fielded for the enhancement of counter UVA capability.

(2) Block 1B RM&A procurements cancelled for the Tech Refresh effort.

(3) Production Engineering efforts associated with RM&A procurements cancelled.

(4) FY 2019-FY 2022 increase for CRDC (CIWS RAM Defense Capability) to improve sensor capability. The CRDC is fielded aboard CVN class ships. This line provides for Hardware procurement, installation hardware and labor for AIT, ISEA, contractor support and initial ILS support. The FY 2019 funding supports 7 shipsets and installation on 6 CVNs. FY 2020 funding supports the procurement of 3 sensors, 3 enclosures, and spares for ultimate employment aboard CVN 77. It supports the installation and checkout for CVN 70 and CVN 76. Also supports the long lead AIT funding for installation materials for CVN 72.

(5) [2-4-6 Plan CG Modernization] USS ANZIO (CG 68) is the remaining non-Block 1B configured ship. CG 68 was originally in our WPN Program of Record for upgrade to Block 1B, but was placed on the decommissioning list; therefore, removed from the WPN POR budget. The Cruiser Modernization 2-4-6 program subsequently removed CG 68 from the decommissioning list. The $10.9M procures two (2) Block 1B mounts that will be installed on CG 68 during Cruiser Modernization in FY22.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Modification Number / Title:** 1 / Block 1B Baseline 2 Radar Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	187.359	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	187.359
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	187.359	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	187.359
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**187.359**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**187.359**
(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 CIWS Block 1B Baseline 2 Radar Upgrade (RUG) Kit is required for CGs, CVNs, DDGs, LCCs, LHAs, LHDs, LPDs, LSDs and WMSLs platforms. The CIWS Block IB Baseline 2 RUG kit is new state of the art digital radar that provides improved performance and increased reliability. It mitigates 200 obsolete components inherent in the existing analog radar by introducing advanced COTS-based signal processing coupled with new low noise signal source. It provides a 2x sensitivity increase along with expanded Doppler (velocity) coverage required for detection and tracking of advanced ASCM and asymmetric threats, provides a 10% increase in system level reliability and provides a 15% reduction in sailor man-hours required for CIWS planned system maintenance.

FY 2016 was the last year of procurement for Radar Upgrade (RUG) Kits.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Modification Number / Title:** 1 / Block 1B Baseline 2 Radar Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: CIWS Block 1B Block 1B Baseline 2 Radar Upgrades	**Modification Type:** ECP/ORDALT	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: Block 1B Baseline 2 Radar Upgrades												
B Kits												
Recurring												
1.1.1) Block 1B Baseline 2 Radar Upgrades - Organic	259 / 187.359	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	259 / 187.359
Subtotal: Recurring	*- / 187.359*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 187.359*
Subtotal: Block 1B Baseline 2 Radar Upgrades	*259 / 187.359*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*259 / 187.359*
Subtotal: Procurement, All Modification Items	*- / 187.359*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 187.359*
Installation												
Subtotal: Installation	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Total												
Total Cost (Procurement + Support + Installation)	**187.359**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**187.359**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Modification Number / Title:** 1 / Block 1B Baseline 2 Radar Upgrades
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: Block 1B Baseline 2 Radar Upgrades

Manufacturer Information

Manufacturer Name: Raytheon CO	Manufacturer Location: Louisville KY
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 12

Dates	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Contract Dates							
Delivery Dates							

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Modification Number / Title:** 2 / CIWS Block 1 B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	1,121.372	3.210	8.050	0.000	3.450	3.450	9.000	0.000	0.000	0.000	0.000	1,145.082
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	1,121.372	3.210	8.050	0.000	3.450	3.450	9.000	0.000	0.000	0.000	0.000	1,145.082
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**1,121.372**	**3.210**	**8.050**	**0.000**	**3.450**	**3.450**	**9.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1,145.082**
(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 Block 1B surface mount includes the addition of a thermal imager, an automatic acquisition video tracker, and stabilization system for the tracker. The upgrade is essential to provide the Fleet capability against small high speed surface threats and low speed air threats.

[CIWS Block 1B] Installation schedule reflects the installation and the CIWS Block 1B and the modification kits CIWS Block 1B conversion upgrade. These 2 cost elements are incorporated into the mount at the factory and the complete mount is installed. It also includes four (4) SeaRAM installation for Rota-based DDGs (in FY19 & FY21) procured under separate budget line items. The budget also provides for the Design Service Allocation (DSA) efforts associated with the planning yard ship checks, Ship Installation Drawing (SID) development, installation on-site support and Ship Selected Record (SSR) updates.

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Modification Number / Title:** 2 / CIWS Block 1 B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: DT001 CIWS Block 1B CIWS Block 1B	**Modification Type:** Phalanx CIWS Block 1	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: CIWS Block 1 B												
B Kits												
Non-Recurring												
1.1.1) CIWS Block 1B - NonOrganic	239 / 505.717	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	239 / 505.717
1.1.2) Modification Kits CIWS Block 1B Conversion and Upgrade - Organic	- / 464.686	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / 464.686
Subtotal: Non-Recurring	*- / 970.403*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 970.403*
Subtotal: CIWS Block 1 B	*239 / 970.403*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*239 / 970.403*
Subtotal: Procurement, All Modification Items	*- / 970.403*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 970.403*
Installation												
Modification Item 1 of 1: CIWS Block 1 B	- / 150.969	- / 3.210	- / 8.050	- / 0.000	- / 3.450	- / 3.450	- / 9.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 174.679
Subtotal: Installation	*- / 150.969*	*- / 3.210*	*- / 8.050*	*- / 0.000*	*- / 3.450*	*- / 3.450*	*- / 9.000*	*- / -*	*- / -*	*- / -*	*- / 0.000*	*- / 174.679*
Total												
Total Cost (Procurement + Support + Installation)	**1,121.372**	**3.210**	**8.050**	**0.000**	**3.450**	**3.450**	**9.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1,145.082**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4205 / Close-In Wpns Sys (CIWS) Mods	**Modification Number / Title:** 2 / CIWS Block 1 B
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: CIWS Block 1 B

Manufacturer Information

Manufacturer Name: Raytheon Co	Manufacturer Location: Louisville KY
Administrative Leadtime *(in Months)*: 0	Production Leadtime *(in Months)*: 24

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

Installation Information

Method of Implementation: Non-Recurring:: Installation Name: BKits

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	242 / 150.969	1 / 3.210	2 / 8.050	0 / 0.000	0 / 3.450	0 / 3.450	2 / 9.000	- / -	- / -	- / -	0 / 0.000	247 / 174.679
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	242 / 150.969	1 / 3.210	2 / 8.050	0 / 0.000	0 / 3.450	0 / 3.450	2 / 9.000	- / -	- / -	- / -	0 / 0.000	247 / 174.679

Installation Schedule

	PYS	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				TC	Tot
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
In	242	-	-	1	-	-	2	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	247
Out	241	-	-	-	2	-	-	-	1	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	247

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	127.602	47.931	40.823	0.000	44.980	44.980	45.853	46.506	47.463	48.437	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	127.602	47.931	40.823	0.000	44.980	44.980	45.853	46.506	47.463	48.437	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**127.602**	**47.931**	**40.823**	**0.000**	**44.980**	**44.980**	**45.853**	**46.506**	**47.463**	**48.437**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.751	0.388	0.000	0.722	0.722	0.634	0.696	0.710	0.724	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $44.98M for Overseas Contingency Operations (OCO); of which $44.98M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Coast Guard Weapons line funds the Coast Guard combat system suite for the United States Coast Guard (USCG) cutters under the Coast Guard surface asset acquisition program. Under inter-service agreement (delineated in OPNAVINST 4000.79B), DON plans, programs, and budgets for specific Navy military equipment, systems and logistic support requirements for USCG units to ensure the USCG is prepared to execute naval warfare tasks in consonance with United States Navy (USN) units. Ship construction and installation costs are funded under the Department of Homeland Security appropriation.

The combat systems and weapons suite will be aligned with future naval ship building programs to support commonality among the two service's systems and meet national fleet objectives. The combat system suite must complement and integrate with Navy combat systems. The suite is an appropriate balance of equipment to ensure the USCG is prepared to accomplish the assigned naval warfare tasks in concert with USN units. The surface asset acquisition program combat suites include the following:

[P5 / CG002 MK 110 GUN]: Provides the MK 110 gun to engage surface threats, independently or in cooperation with other forces, achieving mission kill on high-speed coastal patrol craft beyond small and intermediate caliber gunfire effective range. Includes gun mount, equipment procurement, recurring engineering, and ILS support for the United States Coast Guard National Security Cutter (NSC), aka the Maritime Security Cutter, Large (WMSL), and the Offshore Patrol Cutter (OPC), aka the Maritime Security Cutter, Medium (WMSM), in accordance with OPNAVINST 4000.79(Series) and the Naval Operational Capabilities (NOC) document.

[P5 / CG003 MK 160 GCS]: Provides the MK 160 Mod 12 Gun Computer System (GCS) including equipment procurement, production support, systems engineering, data, and software and test support for the National Security Cutter (NSC), aka the Maritime Security Cutter, Large (WMSL), and the Offshore Patrol Cutter (OPC), aka the Maritime Security Cutter, Medium (WMSM). The MK 160 GCS is required to plan and direct surface threat engagements including the capability to fire warning shots, disabling fire and achieve mission kill against these threats in accordance with National Fleet Policy, OPNAVINST 4000.79(Series), and the NOC.

[P5 / CG004 MK 38 MACHINE GUN SYSTEMS]: Provides the MK 38 Mod 2/3 Machine Gun System (MGS) to plan and engage surface threats, achieving missions kill on high speed patrol craft beyond minor caliber gunfire effective range in accordance with OPNAVINST 4000.79(Series) and the NOC. The MK 38 Mod 3 (vice Mod 2), which began production in FY 2015, permits greater effective range, greater

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

range of elevation to engage air targets, and an improved Toplite electro-optical (EO) system. The MK 38 MGS increases shipboard self-defense against small boat threats and is the main gun of the Fast Response Cutter (FRC), the Offshore Patrol Cutter (OPC), and the WMEC 270' classes. Includes the MK 38 gun mount, Toplite, cannon, and ancillary components, recurring engineering, outfitting spares, and integrated logistics support (ILS). The MK 38 MGS for the OPC Class will include a 7.62mm MK 52 MOD 0 Coaxial Automatic Gun (COAX ORDALT) for Anti-terrorism / Force Protection (AT/FP) missions in narrow waterways and in-port.

[P5 / MK38 COAXIAL GUN UPGRADE]: The MK 38 MGS for the OPC Class requirement has been updated to include an attached 7.62mm MK 52 MOD 0 Coaxial Automatic Gun (COAX ORDALT) for Anti-terrorism / Force Protection (AT/FP) missions in narrow waterways and in-port.

[P5 / CG005 COMBAT SYSTEM INTEGRATION]: Ensures successful integration and system interoperability of Navy type equipment that affects the combat system of USCG National Security Cutter (NSC), aka the Maritime Security Cutter, Large (WMSL), the Offshore Patrol Cutter (OPC), aka the Maritime Security Cutter, Medium (WMSM), and Fast Response Cutters (FRCs). Includes weapon system integration support for the OPC ATHENA Control, Correlation & Display (CCD) System which provides target queuing for Gun Weapon System engagements.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Coast Guard Weapons	P-5a, P-21			- / 127.602	- / 47.931	- / 40.823	- / 0.000	- / 44.980	- / 44.980
P-40	**Total Gross/Weapon System Cost**				**- / 127.602**	**- / 47.931**	**- / 40.823**	**- / 0.000**	**- / 44.980**	**- / 44.980**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:

FY 2020 funding supports the procurement of Navy Type/Navy Owned (NT/NO) weapon systems, integrated logistics support (ILS), technical documentation, software, test and production support for USCG National Security Cutters (WMSLs), Fast Response Cutters (FRCs), and Offshore Patrol Cutters (OPC) being constructed under the Coast Guard Surface Asset Acquisition Program. Funding increases from FY 2019 to FY 2020 are attributed to the (a) full funding of mandatory safety analyses and software updates required for the MK48 Gun Weapons System authorize cutters to fire and deploy with the MK110 57MM GUN (ILS Support), including the retrofitting of software updates and safety testing for previously installed system; (b) An additional two (Qty 2) MK 38 Machine Gun Systems. One is for the OPC program, which increases procurement from 1 to 2 hulls per year, with a corresponding increase in weapons and equipment (including the MK 38 MGS). The second, additional MK38 MGS is for the WMEC as part of WMEC 270' Modernization. Integrated Logistics Support, including support for testing and installation, increase in proportion with these additional procurements; (c) An increase to Combat System Integrated (CSI) costs that correspond to the Spring 2018 finalization of requirements and cost estimates associated with the integration of NT/NO weapons systems with the OPC combat system.

FY 2020 funds the following Coast Guard Weapon items for USCG cutters: procure MK 110 guns and associated ILS; procure MK 160 Gun Computer System and associated support; provide MK 160 test support; procure the MK38 Machine Gun System, associated spares/equipment, MK38 Upgrade to attached a 7.62 MM MK52 Mod 0 Coaxial Gun, and ILS support; provide combat system integration support; procure and integrate the ATHENA Control, Correlation & Display (CCD) System on OPCs, which provides target queuing for Gun Weapon System engagements. The MK 110 is the primary weapon system of the OPC and NSC, and the MK 38 is the primary weapon systems of the FRC and WMEC, and are critical to their self-defense capabilities.

FY 2020 through FY 2023 reflects a change in requirement for the WMEC 270' Modification to procure one MK38 per WMEC hull instead of one MK110 57MM Gun per hull. MK110 57 MM Gun integrated logistics support (ILS) Support is reduced in proportion to the reduction in procurement. ILS Support is added in FY 2020 and continuing through the end of the FYDP to support the MK38 for WMEC.

To support the construction schedule of the Department of Homeland Security addition of National Security Cutter (NSC) #10, $9.0 million in additional funding was appropriated in the FY 2018 Budget to procure an addition MK110 57 MM gun in FY 2018.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4206 / Coast Guard Weapons	Item Number / Title [DODIC]: 1 / Coast Guard Weapons
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	127.602	47.931	40.823	0.000	44.980	44.980
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	127.602	47.931	40.823	0.000	44.980	44.980
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**127.602**	**47.931**	**40.823**	**0.000**	**44.980**	**44.980**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	0.751	0.388	0.000	0.722	0.722
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - CG002 MK 110 GUN Cost																		
Recurring Cost																		
1.1.1) 57MM GUN(†) (1)	8,234K	7	57.636	8,855K	2	17.710	9,023K	2	18.046	-	-	0.000	9,195K	2	18.390	9,195K	2	18.390
1.1.2) ILS SUPPORT (2)	-	-	12.457	-	-	1.847	-	-	2.363	-	-	0.000	-	-	3.416	-	-	3.416
Subtotal: Recurring Cost	-	-	*70.093*	-	-	*19.557*	-	-	*20.409*	-	-	*0.000*	-	-	*21.806*	-	-	*21.806*
Subtotal: Hardware - CG002 MK 110 GUN Cost	**-**	**-**	***70.093***	**-**	**-**	***19.557***	**-**	**-**	***20.409***	**-**	**-**	***0.000***	**-**	**-**	***21.806***	**-**	**-**	***21.806***
Hardware - CG003 MK 160 GCS Cost																		
Recurring Cost																		
2.1.1) SYSTEM ENGINEERING SUPPORT	-	-	1.340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.1.2) PRODUCTION SUPPORT	-	-	3.748	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.1.3) DATA	-	-	1.277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.1.4) SOFTWARE & TEST SUPPORT	-	-	1.677	-	-	0.250	-	-	-	-	-	-	-	-	-	-	-	-
2.1.5) ANCILLARY EQUIPMENT(†)	522,500.00	2	1.045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.1.6) GUN COMPUTER SYSTEM(†)	1,694K	2	3.388	1,535K	3	4.605	1,564K	3	4.692	-	-	0.000	1,594K	2	3.188	1,594K	2	3.188

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4206 / Coast Guard Weapons	Item Number / Title [DODIC]: 1 / Coast Guard Weapons
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
2.1.7) MK160 GCS SOFTWARE UPDATE OPC	-	-	1.420	-	-	0.480	-	-	0.648	-	-	-	-	-	-	-	-	-
2.1.8) ILS SUPPORT (3)	-	-	1.266	-	-	0.158	-	-	0.468	-	-	0.000	-	-	0.714	-	-	0.714
Subtotal: Recurring Cost	-	-	*15.161*	-	-	*5.493*	-	-	*5.808*	-	-	*0.000*	-	-	*3.902*	-	-	*3.902*
Subtotal: Hardware - CG003 MK 160 GCS Cost	**-**	**-**	***15.161***	**-**	**-**	***5.493***	**-**	**-**	***5.808***	**-**	**-**	***0.000***	**-**	**-**	***3.902***	**-**	**-**	***3.902***
Hardware - CG004 MK 38 MACHINE GUN SYSTEMS Cost																		
Recurring Cost																		
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC(†)	883,187.50	32	28.262	1,254K	11	13.794	1,278K	6	7.668	-	-	0.000	1,302K	6	7.812	1,302K	6	7.812
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC(†)	1,230K	1	1.230	1,254K	1	1.254	1,278K	1	1.278	-	-	0.000	1,302K	2	2.604	1,302K	2	2.604
3.1.3) MACHINE GUN SYSTEM EQUIPMENT WMEC (4)	-	-	-	-	-	-	-	-	-	-	-	0.000	1,302K	1	1.302	1,302K	1	1.302
3.1.4) MK38 COAXIAL GUN UPGRADE (5)	-	-	-	-	-	-	-	-	0.413	-	-	0.000	-	-	0.420	-	-	0.420
3.1.5) ILS SUPPORT FRC	-	-	6.264	-	-	3.988	-	-	2.376	-	-	0.000	-	-	2.418	-	-	2.418
3.1.6) ILS SUPPORT OPC (6)	-	-	0.381	-	-	0.399	-	-	0.396	-	-	0.000	-	-	0.806	-	-	0.806
3.1.7) ILS Support WMEC (7)	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.390	-	-	0.390
Subtotal: Recurring Cost	-	-	*36.137*	-	-	*19.435*	-	-	*12.131*	-	-	*0.000*	-	-	*15.752*	-	-	*15.752*
Subtotal: Hardware - CG004 MK 38 MACHINE GUN SYSTEMS Cost	**-**	**-**	***36.137***	**-**	**-**	***19.435***	**-**	**-**	***12.131***	**-**	**-**	***0.000***	**-**	**-**	***15.752***	**-**	**-**	***15.752***
Support - CG005 COMBAT SYSTEM INTEGRATION Cost																		
4.1) CSI (8)	-	-	6.211	-	-	3.446	-	-	2.475	-	-	0.000	-	-	3.520	-	-	3.520
Subtotal: Support - CG005 COMBAT SYSTEM INTEGRATION Cost	**-**	**-**	***6.211***	**-**	**-**	***3.446***	**-**	**-**	***2.475***	**-**	**-**	***0.000***	**-**	**-**	***3.520***	**-**	**-**	***3.520***
Gross/Weapon System Cost	**-**	**-**	**127.602**	**-**	**-**	**47.931**	**-**	**-**	**40.823**	**-**	**-**	**0.000**	**-**	**-**	**44.980**	**-**	**-**	**44.980**

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4206 / Coast Guard Weapons	Item Number / Title [DODIC]: 1 / Coast Guard Weapons
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

(†) indicates the presence of a P-5a

Footnotes:

(1) $9 Million in additional funding appropriated by Congress in FY 2018 to fund a second 57 MM Gun procurement and associated ILS Support for the Congressional addition of NSC 10 to the FY 2018 budget. Reductions of one 57MM Gun per year in FY 2020 through FY 2023 are due to removal of the requirement to outfit WMEC with the 57MM GUN during the 270 Modernization project. The WMEC 270 Modernization requirement has been updated to procure a MK38 Gun on each hull in place of the 57MM Gun.

(2) FY 2019 to FY2020 increase of $1.053M is for mandatory safety analyses and software updates required for the MK48 Gun Weapons System to authorize cutters to fire and deploy with the MK110 57MM GUN (ILS Support), including the retrofitting of software updates and safety testing for previously installed system.

(3) Funding increases from FY 2019 to FY 2020 because program support costs were controlled in previous fiscal years by phasing in integrated logistical support (ILS) for a growing program over time. The MK38 Machine Gun System program has been funding a limited amount of ILS for the Offshore Patrol Cutter (OPC) program in preparation for first delivery. The first OPC delivery is scheduled for late FY19, and requires the remaining planned integrated logistics support to come online shortly after in early FY20, increasing ILS Support from FY19 to FY20.

(4) The WMEC 270 Modernization requirement has been updated to procure a MK38 Gun on each hull in place of the 57MM Gun starting in FY 2020.

(5) The MK38 will be upgraded with an attached MK 52 Mod 0 Coaxial Automatic Gun. The MK38 Coaxial Gun upgrade will be back-fit on OPC 1 and 2 in FY 2019.

(6) FY20 increase attributed to the first Offshore Patrol Cutter (OPC) delivery scheduled for late FY19. Requiring the remaining planned integrated logistics support to come online shortly after in early FY20. In FY21 and out, cost growth is forecasted to be only marginal, approximating inflation.

(7) ILS Support for the WMEC 270 Modernization is added to support the updated requirement to procure a MK38 Gun on each WMEC hull in replacement of the 57MM Gun requirement.

(8) FY 2019 to FY 2020 increase attributed to updated integration effort requirements for the OPC ATHENA Control, Correlation & Display (CCD) System which provides target queuing for Gun Weapon System engagements. These requirements were established during Spring 2018 when final cost estimates were received.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4206 / Coast Guard Weapons	Item Number / Title [DODIC]: 1 / Coast Guard Weapons

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) 57MM GUN(†)		2013	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NAVSEA	Sep 2014	Sep 2016	1	8,600K	Y		Jun 2010
1.1.1) 57MM GUN(†)		2015	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NAVSEA	Oct 2015	Oct 2017	1	8,097K	Y		Oct 2013
1.1.1) 57MM GUN(†)		2016	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NAVSEA	Dec 2015	Dec 2017	1	8,528K	Y		Oct 2013
1.1.1) 57MM GUN(†)		2017	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NAVSEA	Aug 2017	Aug 2019	2	8,490K	Y		Aug 2016
1.1.1) 57MM GUN(†)		2018	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NAVSEA	Jun 2018	Jun 2020	2	8,855K	Y		Aug 2016
1.1.1) 57MM GUN(†)		2019 (9)	BAE SYSTEMS / MINNEAPOLIS, MN	C / FFP	NAVSEA	Apr 2019	Jul 2021	2	9,023K	N		
1.1.1) 57MM GUN(†)	✓	2020 (10)	BAE SYSTEMS / MINNEAPOLIS, MN	C / FFP	NAVSEA	Apr 2020	Jul 2022	2	9,195K	N		
2.1.5) ANCILLARY EQUIPMENT		2016	US Army Contracting Command / Picatinny Arsenal, NJ	MIPR	Picatinny, NJ	Aug 2016	Aug 2017	2	522,500.00	Y		Mar 2016
2.1.6) GUN COMPUTER SYSTEM		2017	LOCKHEED MARTIN / MANASSAS, VA	C / FFP	NAVSEA	Mar 2017	Dec 2017	1	1,506K	Y		Jan 2016
2.1.6) GUN COMPUTER SYSTEM		2018	LOCKHEED MARTIN / MANASSAS, VA	C / FFP	NAVSEA	Mar 2018	Dec 2018	3	1,535K	Y		Jan 2016
2.1.6) GUN COMPUTER SYSTEM		2019 (11)	LOCKHEED MARTIN / MANASSAS, VA	C / FFP	NAVSEA	Jun 2019	Dec 2020	3	1,564K	N		Jan 2016
2.1.6) GUN COMPUTER SYSTEM	✓	2020 (12)	LOCKHEED MARTIN / MANASSAS, VA	C / FFP	NAVSEA	Jun 2020	Dec 2021	2	1,594K	N		Jan 2016
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC(†)		2015	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Oct 2015	Oct 2016	4	1,185K	Y		Aug 2015
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC(†)		2017	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Sep 2017	Sep 2018	1	1,230K	Y		Aug 2016
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC(†)		2018	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Jun 2018	Jun 2019	11	1,254K	Y		Aug 2016
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC(†)		2019	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Jun 2019	Jun 2020	6	1,278K	N		Aug 2016
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC(†)	✓	2020	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Jun 2020	Jun 2021	6	1,302K	N		Aug 2016
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC(†)		2017	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Mar 2017	Mar 2018	1	1,230K	Y		Aug 2015
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC(†)		2018	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Jun 2018	Jun 2019	1	1,254K	Y		Aug 2015
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC		2019	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Jun 2019	Jun 2020	1	1,278K	N		Aug 2015

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4206 / Coast Guard Weapons	Item Number / Title [DODIC]: 1 / Coast Guard Weapons

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
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC	✓	2020	BAE SYSTEMS / MINNEAPOLIS, MN	SS / FP	NSWC IHD	Jun 2021	Jun 2022	2	1,302K	N		Aug 2015

(†) indicates the presence of a P-21

Footnotes:

(9) 27 month manufacturing lead time.

(10) 27 month manufacturing lead time.

(11) Manufacturing lead time will be 18 months.

(12) Manufacturing lead time will be 18 months.

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2 | **P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons | **Item Number / Title [DODIC]:** 1 / Coast Guard Weapons

Cost Elements (Units in Each)							Fiscal Year 2014												Fiscal Year 2015												BALANCE
							Calendar Year 2014												Calendar Year 2015												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	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) 57MM GUN (1)																															
Prior Years Deliveries: 2																															
	1	2013	NAVY	1	0	1												A -	-	-	-	-	-	-	-	-	-	-	-	-	1
	1	2015	NAVY	1	0	1																									1
	1	2016	NAVY	1	0	1																									1
	1	2017	NAVY	2	0	2																									2
	1	2018	NAVY	2	0	2																									2
	1	2019	NAVY	2 (13)	0	2																									2
✓	1	2020	NAVY	2	0	2																									2
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC																															
Prior Years Deliveries: 27																															
	2	2015	NAVY	4	0	4																									4
	2	2017	NAVY	1	0	1																									1
	2	2018	NAVY	11	0	11																									11
	2	2019	NAVY	6	0	6																									6
✓	2	2020	NAVY	6	0	6																									6
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC																															
	3	2017	NAVY	1	0	1																									1
	3	2018	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2 | **P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons | **Item Number / Title [DODIC]:** 1 / Coast Guard Weapons

Cost Elements (Units in Each)							Fiscal Year 2016												Fiscal Year 2017												BALANCE
										Calendar Year 2016												Calendar Year 2017									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	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) 57MM GUN (1)																															
Prior Years Deliveries: 2																															
	1	2013	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	1													0
	1	2015	NAVY	1	0	1	A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	1	2016	NAVY	1	0	1			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	1	2017	NAVY	2	0	2																							A -	-	2
	1	2018	NAVY	2	0	2																									2
	1	2019	NAVY	2 (13)	0	2																									2
✓	1	2020	NAVY	2	0	2																									2
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC																															
Prior Years Deliveries: 27																															
	2	2015	NAVY	4	0	4	A -	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	1			0
	2	2017	NAVY	1	0	1																								A -	1
	2	2018	NAVY	11	0	11																									11
	2	2019	NAVY	6	0	6																									6
✓	2	2020	NAVY	6	0	6																									6
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC																															
	3	2017	NAVY	1	0	1																		A -	-	-	-	-	-	-	1
	3	2018	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2 | **P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons | **Item Number / Title [DODIC]:** 1 / Coast Guard Weapons

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) 57MM GUN (1)																															
Prior Years Deliveries: 2																															
	1	2013	NAVY	1	1	0																									0
	1	2015	NAVY	1	0	1	1																								0
	1	2016	NAVY	1	0	1	-	-	1																						0
	1	2017	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
	1	2018	NAVY	2	0	2									A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	1	2019	NAVY	2 (13)	0	2																			A -	-	-	-	-	-	2
✓	1	2020	NAVY	2	0	2																									2
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC																															
Prior Years Deliveries: 27																															
	2	2015	NAVY	4	4	0																									0
	2	2017	NAVY	1	0	1	-	-	-	-	-	-	-	-	-	-	-	1													0
	2	2018	NAVY	11	0	11									A -	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	9
	2	2019	NAVY	6	0	6																					A -	-	-	-	6
✓	2	2020	NAVY	6	0	6																									6
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC																															
	3	2017	NAVY	1	0	1	-	-	-	-	-	1																			0
	3	2018	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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2 | **P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons | **Item Number / Title [DODIC]:** 1 / Coast Guard Weapons

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) 57MM GUN (1)																															
Prior Years Deliveries: 2																															
	1	2013	NAVY	1	1	0																									0
	1	2015	NAVY	1	1	0																									0
	1	2016	NAVY	1	1	0																									0
	1	2017	NAVY	2	1	1	-	1																							0
	1	2018	NAVY	2	0	2	-	-	-	-	-	-	-	-	1	-	-	1													0
	1	2019	NAVY	2 (13)	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
✓	1	2020	NAVY	2	0	2							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC																															
Prior Years Deliveries: 27																															
	2	2015	NAVY	4	4	0																									0
	2	2017	NAVY	1	1	0																									0
	2	2018	NAVY	11	2	9	1	-	1	-	1	1	1	1	-	1	-	1	-	1											0
	2	2019	NAVY	6	0	6	-	-	-	-	-	-	-	-	1	-	1	-	1	-	1	-	1	-	1						0
✓	2	2020	NAVY	6	0	6									A -	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	4
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC																															
	3	2017	NAVY	1	1	0																									0
	3	2018	NAVY	1	1	0																									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2 | **P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons | **Item Number / Title [DODIC]:** 1 / Coast Guard Weapons

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) 57MM GUN (1)																															
Prior Years Deliveries: 2																															
	1	2013	NAVY	1	1	0																									0
	1	2015	NAVY	1	1	0																									0
	1	2016	NAVY	1	1	0																									0
	1	2017	NAVY	2	2	0																									0
	1	2018	NAVY	2	2	0																									0
	1	2019	NAVY	2 (13)	1	1	1																								0
✓	1	2020	NAVY	2	0	2	-	-	-	-	-	-	-	-	-	1	-	-	1												0
3.1.1) MACHINE GUN SYSTEM EQUIPMENT FRC																															
Prior Years Deliveries: 27																															
	2	2015	NAVY	4	4	0																									0
	2	2017	NAVY	1	1	0																									0
	2	2018	NAVY	11	11	0																									0
	2	2019	NAVY	6	6	0																									0
✓	2	2020	NAVY	6	2	4	1	-	1	-	1	-	1																		0
3.1.2) MACHINE GUN SYSTEM EQUIPMENT OPC																															
	3	2017	NAVY	1	1	0																									0
	3	2018	NAVY	1	1	0																									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4206 / Coast Guard Weapons	**Item Number / Title [DODIC]:** 1 / Coast Guard Weapons

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	BAE SYSTEMS - MINNEAPOLIS, MN	1	2	4	9	3	30	33	3	3	24	27
2	BAE SYSTEMS - MINNEAPOLIS, MN	10	24	60	6	3	18	21	3	3	12	15
3	BAE SYSTEMS - MINNEAPOLIS, MN	10	24	60	6	3	18	21	3	3	12	15

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(13) Data not yet available

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	714.738	73.328	74.633	0.000	66.376	66.376	74.470	75.109	76.617	78.149	8.381	1,241.801
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	714.738	73.328	74.633	0.000	66.376	66.376	74.470	75.109	76.617	78.149	8.381	1,241.801
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**714.738**	**73.328**	**74.633**	**0.000**	**66.376**	**66.376**	**74.470**	**75.109**	**76.617**	**78.149**	**8.381**	**1,241.801**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	3.080	1.013	0.000	1.102	1.102	3.437	3.777	3.852	3.929	Continuing	Continuing
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $66.376M for Overseas Contingency Operations (OCO); of which $66.376M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Gun Mount Mods supports various types of Gun Weapon Systems, sub-system modifications and upgrade requirements.

[P5 / E5001 MK45 MODS 1&2]: Funding was realigned to E5011.

[P5 / E5002 MEDIUM CALIBER GUN MODS]: Medium Caliber Gun Mounts (MK110 57mm or MK75 76mm) are installed on Littoral Combat Ships (LCS), United States Coast Guard (USCG) Maritime Security Cutters, Large (WMSL), and USCG Medium Endurance Cutters (WMEC) as well as land based training/test units. The gun mounts provide an anti-surface warfare and anti-air warfare capability for outfitted ships. Funds procure Ordnance Alterations (ORDALT kits), and provide Integrated Logistics Support (ILS) and production engineering for system improvements that affect safety, reliability and maintainability.

[P5 / E5004 MK45 MOD 4]: Funding was realigned to E5011.

[P5 / E5006 MINOR CALIBER GUN MODS]: Minor Caliber Gun Mounts (MK38 MOD or MK46 MOD) are installed on Amphibious Assault Ships (AS), Aircraft Carrier (nuclear propulsion) (CVN), Guided Missile Cruisers (CG), Destroyer Designated Guided ships (DDG), Littoral Combat Ships (LCS), Landing Ship Dock amphibious assault ships (LSD), Landing Helicopter Assault ships (LHA), Landing Helicopter Dock amphibious assault ships (LHD), Patrol Crafts Coastal (PC), United States Coast Guard (USCG) Fast Response Cutters (FRC), USCG Offshore Patrol Cutters (OPC), USCG Medium Endurance Cutters (WMEC), Amphibious Command Ships (LCC), MK VI Patrol Boats and land based training/test units. The gun mounts provide an anti-surface warfare and anti-air warfare capability for outfitted ships. Funds procure ORDALT kits, and provide ILS support and production engineering for system improvements that affect safety, reliability and maintainability.

[P5 / E5011 MAJOR CALIBER GUN MODS]: The 5-Inch MK45 MOD Gun Mounts are automated, lightweight, single-barrel gun mounts that provide an anti-surface warfare, anti-air warfare, and naval surface fire support capability for outfitted ships. The MK45 is installed on CG47 and DDG51 Class surface ships and land based training/test units. Funds procure ORDALTs kits, and provide ILS support and production engineering for system improvements that affect safety, reliability and maintainability.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Gun Mount Mods				- / 284.437	- / 29.132	- / 47.420	- / 0.000	- / 47.495	- / 47.495
P-3a	1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS (TBD)				- / 430.301	- / 44.196	- / 27.213	- / 0.000	- / 18.881	- / 18.881
P-40	**Total Gross/Weapon System Cost**				**- / 714.738**	**- / 73.328**	**- / 74.633**	**- / 0.000**	**- / 66.376**	**- / 66.376**

Exhibits Schedule					FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-5	1 / Gun Mount Mods				- / -	- / -	- / -	- / -	- / -	- / -
P-3a	1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS (TBD)				- / 19.259	- / 13.740	- / 14.842	- / 15.252	- / 8.381	- / 592.065
P-40	**Total Gross/Weapon System Cost**				**- / 74.470**	**- / 75.109**	**- / 76.617**	**- / 78.149**	**- / 8.381**	**- / 1,241.801**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:

FY 2020 E5002 MEDIUM CALIBER GUN MODS 2.1.1 increase provides additional engineering services for increased number of in-service guns.

MK38 Machine Gun System kits will continue procurement of MK38 MOD 3 configuration with multiple capability upgrades: 7.62mm coaxially mounted machine gun, improved Electro-Optical Infrared Sensor (EOIR) for target identification, improved main computer unit, and aerial target detection/tracking/engagement capability. These capabilities will improve ship-based solutions for close range Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) Counter-Swarm and Counter Unmanned Aerial Systems (C-UAS).

Installations for large deck include aircraft carrier (nuclear propulsion) (CVN) installations, submarine tenders (AS), Landing Helicopter Assault Ships (LHA), and Landing Helicopter Dock Ships (LHD). CVN installation costs are much higher than the amphibious ships previously executed (longer cable runs, larger sponsons, and floating crane requirements). Unit costs for installation in FY19-FY24 are based on actuals per installation on CVNs in FY18.

FY 2020 E5006 MINOR CALIBER GUN MODS 4.1.3 increase in Gun Kits ILS/Test/Production increase due to concurrent installations on CVN, AS, LHD, and LHA class ships, which increased production, installation and test support costs.

FY 2020 E5006 MINOR CALIBER GUN MODS 4.1.8 increase in MK38 Upgrade Kit Install due to increased number of MK38 Coaxial Upgrade Kits being installed in FY 2020.

FY 2020 E5006 MINOR CALIBER GUN MODS 4.1.10 increase in MK38 backfit kit due to establishment for MK 38 Mod 3 ORDALT to upgrade deployed systems.

FY 2020 E5006 MINOR CALIBER GUN MODS 4.1.13 increase due to additional LPD installations and installation requirements, which vary from ship to ship. In FY20 program will install 2 kits each aboard 11 LPD class ships (22 kits total).

FY 2020 E5011 MAJOR CALIBER GUN MODS 9.1.1 increase is due to Ordnance Alteration requirements to include required non-recurring engineering, procurement, logistics and installation requirements to support Major Caliber Gun Mounts in the Fleet.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods	
ID Code (A=Service Ready, B=Not 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-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4217 / Gun Mount Mods	Item Number / Title [DODIC]: 1 / Gun Mount Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	284.437	29.132	47.420	0.000	47.495	47.495
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	284.437	29.132	47.420	0.000	47.495	47.495
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**284.437**	**29.132**	**47.420**	**0.000**	**47.495**	**47.495**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - E5001 MK45 MODS 1&2 Cost																		
Non Recurring Cost																		
1.1.1) MK45 MODS 1&2 KITS	-	-	16.708	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*16.708*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - E5001 MK45 MODS 1&2 Cost	**-**	**-**	***16.708***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - E5002 MEDIUM CALIBER GUN MODS Cost																		
Recurring Cost																		
2.1.1) MEDIUM CALIBER KITS (1)	-	-	11.987	-	-	1.745	-	-	2.210	-	-	0.000	-	-	3.497	-	-	3.497
2.1.2) MEDIUM CALIBER GUN	-	-	12.875	-	-	0.000	-	-	9.146	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*24.862*	-	-	*1.745*	-	-	*11.356*	-	-	*0.000*	-	-	*3.497*	-	-	*3.497*
Subtotal: Hardware - E5002 MEDIUM CALIBER GUN MODS Cost	**-**	**-**	***24.862***	**-**	**-**	***1.745***	**-**	**-**	***11.356***	**-**	**-**	***0.000***	**-**	**-**	***3.497***	**-**	**-**	***3.497***
Hardware - E5004 MK45 MOD 4 Cost																		
Non Recurring Cost																		
3.1.1) DDG MODERNIZATION WEAPONS	-	-	8.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.1.2) MK45 MOD 4 KITS	-	-	55.912	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4217 / Gun Mount Mods	Item Number / Title [DODIC]: 1 / Gun Mount Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
3.1.3) MK45 MOD 4 KITS-INSTALL / ILS / PRODUCTION	-	-	4.203	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*68.115*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - E5004 MK45 MOD 4 Cost	**-**	**-**	***68.115***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - E5006 MINOR CALIBER GUN MODS Cost																		
Recurring Cost																		
4.1.1) MK38 GUN ENGINEERING CHANGE ORDERS	-	-	11.928	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.2) SPS DE-INSTALLATION	-	-	1.416	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.3) MK38 GUN KITS ILS / TEST / PRODUCTION SUPT (Surface Warfare) (2)	-	-	29.066	-	-	2.182	-	-	2.113	-	-	0.000	-	-	2.243	-	-	2.243
4.1.4) MK38 GUN KITS ILS / TEST / PRODUCTION SUPT (Expeditionary Warfare)	-	-	1.438	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.6) MK38 COAXIAL GUN UPGRADE	-	-	5.034	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.7) MK38 UPGRADE KITS	-	-	14.934	-	-	8.171	-	-	13.716	-	-	0.000	-	-	9.077	-	-	9.077
4.1.8) MK38 UPGRADE KIT INSTALL (3)	-	-	2.500	-	-	2.000	-	-	2.000	-	-	0.000	-	-	4.400	-	-	4.400
4.1.9) MK38 UPGRADE LOGISTICS SUPT	-	-	8.801	-	-	2.027	-	-	1.918	-	-	0.000	-	-	1.462	-	-	1.462
4.1.10) MK38 BACKFIT KIT (4)	-	-	0.000	-	-	0.000	-	-	4.880	-	-	0.000	-	-	11.296	-	-	11.296
4.1.11) MK38 TECH REFRESH	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.112	-	-	2.112
4.1.12) MK46 GWS KITS	-	-	9.814	-	-	3.744	-	-	3.500	-	-	0.000	-	-	3.472	-	-	3.472
4.1.13) MK46 GWS KIT INSTALL (5)	-	-	1.344	-	-	0.486	-	-	0.550	-	-	0.000	-	-	0.616	-	-	0.616

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4217 / Gun Mount Mods	Item Number / Title [DODIC]: 1 / Gun Mount Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
4.1.14) MK46 GUN SCHOOL HOUSE	-	-	8.893	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*95.168*	-	-	*18.610*	-	-	*28.677*	-	-	*0.000*	-	-	*34.678*	-	-	*34.678*
Subtotal: Hardware - E5006 MINOR CALIBER GUN MODS Cost	**-**	**-**	***95.168***	**-**	**-**	***18.610***	**-**	**-**	***28.677***	**-**	**-**	***0.000***	**-**	**-**	***34.678***	**-**	**-**	***34.678***
Hardware - E5007 FORCE PROTECTION WEAPONS (ATFP) Cost																		
Non Recurring Cost																		
5.1.1) FORCE PROTECTION WEAPONS (ATFP)	-	-	5.308	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*5.308*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - E5007 FORCE PROTECTION WEAPONS (ATFP) Cost	**-**	**-**	***5.308***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - E5008 STABILIZED MK38 MOD 2 GUNS - ESVS Cost																		
Non Recurring Cost																		
6.1.1) STABILIZED MK38 MOD 2 GUNS - ESVS	-	-	10.438	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*10.438*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - E5008 STABILIZED MK38 MOD 2 GUNS - ESVS Cost	**-**	**-**	***10.438***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - E5009 TRANSIT PROTECTION SYSTEMS Cost																		
Non Recurring Cost																		
7.1.1) PALLETIZED PROTECTION SYSTEMS	-	-	1.100	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
7.1.2) PRE-PRODUCTION COSTS	-	-	1.691	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*2.791*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - E5009 TRANSIT PROTECTION SYSTEMS Cost	**-**	**-**	***2.791***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - MK110 (57MM) NAVAL GUN Cost																		
Non Recurring Cost																		

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4217 / Gun Mount Mods	Item Number / Title [DODIC]: 1 / Gun Mount Mods
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
8.1.1) LAND BASED ENGINEERING SITE	-	-	7.800	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*7.800*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - MK110 (57MM) NAVAL GUN Cost	**-**	**-**	***7.800***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - E5011 MAJOR CALIBER GUN MODS Cost																		
Recurring Cost																		
9.1.1) MK45 MOD 1, 2 & 4 KITS	-	-	34.382	-	-	5.853	-	-	4.396	-	-	0.000	-	-	6.240	-	-	6.240
9.1.2) MK45 MOD 1 , 2 & 4 INSTALL / ILS / PROD SUPT	-	-	18.865	-	-	2.924	-	-	2.991	-	-	0.000	-	-	3.080	-	-	3.080
Subtotal: Recurring Cost	-	-	*53.247*	-	-	*8.777*	-	-	*7.387*	-	-	*0.000*	-	-	*9.320*	-	-	*9.320*
Subtotal: Hardware - E5011 MAJOR CALIBER GUN MODS Cost	**-**	**-**	***53.247***	**-**	**-**	***8.777***	**-**	**-**	***7.387***	**-**	**-**	***0.000***	**-**	**-**	***9.320***	**-**	**-**	***9.320***
Gross/Weapon System Cost	**-**	**-**	**284.437**	**-**	**-**	**29.132**	**-**	**-**	**47.420**	**-**	**-**	**0.000**	**-**	**-**	**47.495**	**-**	**-**	**47.495**

Remarks:
[Hardware] FY 2020 E5011 MAJOR CALIBER GUN MODS 9.1.1 increase is due to in Ordnance Alteration requirements to include required non-recurring engineering, procurement, logistics and installation requirements to support Major Caliber Gun Mounts in the Fleet.

Footnotes:
(1) FY 2020 E5002 MEDIUM CALIBER GUN MODS 2.1.1 increase provides additional engineering services for increased number of in-service guns.
(2) FY 2020 E5006 MINOR CALIBER GUN MODS 4.1.3 increase in Gun Kits ILS/Test/Production increase due to concurrent installations on CVN and AS class ships, which increased production, installation and test support costs.
(3) FY 2020 increase in MK38 Upgrade Kit Install due to increased number of MK38 Coaxial Upgrade Kits being installed in FY 2020.
(4) FY 2020 E5006 MINOR CALIBER GUN MODS 4.1.10 increase in MK38 backfit kit due to establishment for MK 38 Mod 3 ORDALT to upgrade deployed systems.
(5) FY 2020 increase due to additional LPD installations and installation requirements, which vary from ship to ship. In FY20 program will install 2 kits each aboard 11 LPD class ships (22 kits total).

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods	**Modification Number / Title:** 1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	430.301	44.196	27.213	0.000	18.881	18.881	19.259	13.740	14.842	15.252	8.381	592.065
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	430.301	44.196	27.213	0.000	18.881	18.881	19.259	13.740	14.842	15.252	8.381	592.065
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**430.301**	**44.196**	**27.213**	**0.000**	**18.881**	**18.881**	**19.259**	**13.740**	**14.842**	**15.252**	**8.381**	**592.065**
(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:

Minor Caliber Gun Mounts (MK38 MOD or MK46 MOD) are installed on AS, CVN, CG, DDG, LCS, LSD, LHA, LHD, PC, USCG FRC, USCG OPC, USCG WMEC, LCC, MK VI Patrol Boats and land based training/test units. The gun mounts provide an anti-surface warfare and anti-air warfare capability for outfitted ships. Funds procure ORDALTs kits, and provide ILS support and production engineering for system improvements that affect safety, reliability and maintainability.

[MINOR CAL. GUN MK38 GUN KITS (Surface Warfare) Standard]

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods	**Modification Number / Title:** 1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: [No Model Specified]	**Modification Type:** TBD	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement												
Modification Item 1 of 1: E5006 MINOR CALIBER GUN MODS MK38 GUN KITS												
B Kits												
Recurring												
1.1.1) MINOR CAL. GUN MK38 GUN KITS (Surface Warfare) Standard - NonOrganic	263 / 221.082	8 / 11.544	- / -	- / -	- / -	- / -	6 / 9.192	2 / 3.126	- / -	- / -	- / -	279 / 244.944
1.1.2) MINOR CAL. GUN MK38 GUN KITS (Surface Warfare) Large Deck - NonOrganic [6]	36 / 45.333	8 / 11.544	6 / 8.832	- / 0.000	6 / 9.012	6 / 9.012	- / -	4 / 6.252	4 / 6.376	5 / 8.130	- / -	69 / 95.479
1.1.3) MINOR CAL. GUN MODS MK38 GUN KITS (Expeditionary Warfare) - NonOrganic	10 / 11.966	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	10 / 11.966
Subtotal: Recurring	*- / 278.381*	*- / 23.088*	*- / 8.832*	*- / 0.000*	*- / 9.012*	*- / 9.012*	*- / 9.192*	*- / 9.378*	*- / 6.376*	*- / 8.130*	*- / 0.000*	*- / 352.389*
Subtotal: E5006 MINOR CALIBER GUN MODS MK38 GUN KITS	*309 / 278.381*	*16 / 23.088*	*6 / 8.832*	*- / 0.000*	*6 / 9.012*	*6 / 9.012*	*6 / 9.192*	*6 / 9.378*	*4 / 6.376*	*5 / 8.130*	*- / -*	*358 / 352.389*
Subtotal: Procurement, All Modification Items	*- / 278.381*	*- / 23.088*	*- / 8.832*	*- / 0.000*	*- / 9.012*	*- / 9.012*	*- / 9.192*	*- / 9.378*	*- / 6.376*	*- / 8.130*	*- / 0.000*	*- / 352.389*
Installation												
Modification Item 1 of 1: E5006 MINOR CALIBER GUN MODS MK38 GUN KITS	- / 151.920	- / 21.108	- / 18.381	- / 0.000	- / 9.869	- / 9.869	- / 10.067	- / 4.362	- / 8.466	- / 7.122	- / 8.381	- / 239.676
Subtotal: Installation	*- / 151.920*	*- / 21.108*	*- / 18.381*	*- / 0.000*	*- / 9.869*	*- / 9.869*	*- / 10.067*	*- / 4.362*	*- / 8.466*	*- / 7.122*	*- / 8.381*	*- / 239.676*
Total												
Total Cost (Procurement + Support + Installation)	**430.301**	**44.196**	**27.213**	**0.000**	**18.881**	**18.881**	**19.259**	**13.740**	**14.842**	**15.252**	**8.381**	**592.065**

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods	**Modification Number / Title:** 1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS

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

Modification Item 1 of 1: E5006 MINOR CALIBER GUN MODS MK38 GUN KITS

Manufacturer Information

Manufacturer Name: BAE SYSTEMS | Manufacturer Location: Minneapolis, MN

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

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

Installation Information

Method of Implementation: [none specified]:: Installation Name: MINOR CAL. GUN MK38 GUN KITS (Surface Warfare) Standard

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	248 / 117.171	22 / 14.784	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	270 / 131.955
FY 2018	- / -	- / -	8 / 5.480	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 5.480
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	6 / 4.362	- / -	- / -	0 / 0.000	6 / 4.362
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	2 / 1.484	- / -	0 / 0.000	2 / 1.484
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	248 / 117.171	22 / 14.784	8 / 5.480	- / -	- / -	- / -	- / -	6 / 4.362	2 / 1.484	- / -	0 / 0.000	286 / 143.281

Installation Schedule

		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
	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	248	-	5	8	9	-	3	3	2	-	-	-	-	-	-	-	-	-	2	3	1	-	2	-	-	-	-	-	-	-	286
Out	242	6	-	8	5	9	-	3	3	2	-	-	-	-	-	-	-	-	-	2	3	1	-	-	2	-	-	-	-	-	286

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods	**Modification Number / Title:** 1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: E5006 MINOR CALIBER GUN MODS MK38 GUN KITS

Installation Information

Method of Implementation: [none specified]:: Installation Name: MINOR CAL. GUN MK38 GUN KITS (Surface Warfare) Large Deck

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	25 / 29.967	4 / 6.324	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	29 / 36.291
FY 2018	- / -	- / -	8 / 12.901	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	8 / 12.901
FY 2019	- / -	- / -	- / -	0 / 0.000	6 / 9.869	6 / 9.869	- / -	- / -	- / -	- / -	0 / 0.000	6 / 9.869
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	6 / 10.067	- / -	- / -	- / -	0 / 0.000	6 / 10.067
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 6.982	- / -	0 / 0.000	4 / 6.982
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	4 / 7.122	0 / 0.000	4 / 7.122
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	5 / 8.381	5 / 8.381
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	25 / 29.967	4 / 6.324	8 / 12.901	0 / 0.000	6 / 9.869	6 / 9.869	6 / 10.067	- / -	4 / 6.982	4 / 7.122	5 / 8.381	62 / 91.613

Installation Schedule

		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
	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	25	-	2	2	-	-	-	3	5	-	-	2	4	-	-	4	2	-	-	-	-	-	-	4	-	-	-	4	-	5	62
Out	23	2	-	2	2	-	-	-	3	5	-	-	2	4	-	-	4	2	-	-	-	-	-	-	4	-	-	-	4	5	62

Method of Implementation: [none specified]:: Installation Name: MINOR CAL. GUN MODS MK38 GUN KITS (Expeditionary Warfare)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	10 / 4.782	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 4.782
FY 2018	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2019	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2023	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
FY 2024	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -

Exhibit P-3a, Individual Modification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4217 / Gun Mount Mods	**Modification Number / Title:** 1 / E5006 MINOR CALIBER GUN MODS MK38 GUN KITS

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

Modification Item 1 of 1: E5006 MINOR CALIBER GUN MODS MK38 GUN KITS

Installation Information

Method of Implementation: [none specified]:: Installation Name: MINOR CAL. GUN MODS MK38 GUN KITS (Expeditionary Warfare)

Installation Cost	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
To Complete	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Total	10 / 4.782	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	0 / 0.000	10 / 4.782

Installation Schedule

		FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024					
	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Out	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10

Footnotes:

(6) MK38 Machine Gun System kits will continue procurement of MK38 MOD 3 configuration with multiple capability upgrades: 7.62mm coaxially mounted machine gun, improved Electro-Optical Infrared Sensor (EOIR) for target identification, improved main computer unit, and aerial target detection/tracking/engagement capability. These capabilities will improve ship-based solutions for close range Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) Counter-Swarm and Counter Unmanned Aerial Systems (C-UAS). FY 2020 increase for 6 Surface Warfare Large Deck installations. Installations for large deck include CVN installations. CVN installation costs are much higher than the amphibious ships previously executed (longer cable runs, larger sponsons, and floating crane requirements).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4221 / LCS Module Weapons

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	24	88	90	-	120	120	115	109	109	109	-	764
Gross/Weapon System Cost *($ in Millions)*	2.776	10.610	11.350	0.000	14.585	14.585	14.417	13.825	14.103	14.385	37.555	133.606
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2.776	10.610	11.350	0.000	14.585	14.585	14.417	13.825	14.103	14.385	37.555	133.606
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2.776**	**10.610**	**11.350**	**0.000**	**14.585**	**14.585**	**14.417**	**13.825**	**14.103**	**14.385**	**37.555**	**133.606**
(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)*	115,666.67	120,568.18	126,111.11	-	121,541.67	121,541.67	125,365.22	126,834.86	129,385.32	131,972.48	-	174,876.96

Description:

FY 2020 funding totals include $0.0M for Base and $14.585M for Overseas Contingency Operations (OCO); of which $14.585M and 120 quantity is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Surface Warfare (SUW) Mission Package (MP) increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving Littoral Combat Ship (LCS) the ability to protect the sea lanes and move a force quickly through a choke point or other strategic waterway. With the SUW MP embarked, LCS has enhanced detection and engagement capability against enemy small craft and similar littoral surface threats.

Other Related Budgets: BLIs: OPN 1603 LCS SUW Mission Modules, RDT&E 0603596N LCS Mission Modules

[P5 / Longbow Hellfire Missile]: The Longbow Hellfire missile is a fire and forget, millimeter-wave seeker missile for autonomous engagement. It has a 12.39 lb warhead, a single stage motor and a 6-8 km range when vertically launched. The Navy procures replacement in kind missiles from the Army inventory, completes shipboard modifications and certifications to deliver to the Fleet.

[P5 / 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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4221 / LCS Module Weapons	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 Module Weapons	P-5a, P-21			24 / 2.776	88 / 10.610	90 / 11.350	- / 0.000	120 / 14.585	120 / 14.585
P-40	**Total Gross/Weapon System Cost**				**24 / 2.776**	**88 / 10.610**	**90 / 11.350**	**- / 0.000**	**120 / 14.585**	**120 / 14.585**

*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:
Increased funding in FY 2020 supports the increased procurement of Longbow Hellfire missiles, which will support LCS SUW Division Deployments in FY 2021 and FY 2022 and maintain/build to the Navy inventory objective of 684 missiles.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4221 / LCS Module Weapons	**Item Number / Title [DODIC]:** 1 / LCS Module Weapons
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	24	88	90	-	120	120
Gross/Weapon System Cost *($ in Millions)*	2.776	10.610	11.350	0.000	14.585	14.585
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2.776	10.610	11.350	0.000	14.585	14.585
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2.776**	**10.610**	**11.350**	**0.000**	**14.585**	**14.585**
(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)*	115,666.67	120,568.18	126,111.11	-	121,541.67	121,541.67

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) Longbow Hellfire Missile(†)	112,625.00	24	2.703	115,472.73	88	10.162	117,490.91	90	10.574	-	-	0.000	119,583.00	120	14.350	119,583.00	120	14.350
Subtotal: Recurring Cost	-	-	*2.703*	-	-	*10.162*	-	-	*10.574*	-	-	*0.000*	-	-	*14.350*	-	-	*14.350*
Subtotal: Hardware Cost	**-**	**-**	***2.703***	**-**	**-**	***10.162***	**-**	**-**	***10.574***	**-**	**-**	***0.000***	**-**	**-**	***14.350***	**-**	**-**	***14.350***
Support Cost																		
2.1) Consulting Services	-	-	0.073	-	-	0.448	-	-	0.776	-	-	0.000	-	-	0.235	-	-	0.235
Subtotal: Support Cost	**-**	**-**	***0.073***	**-**	**-**	***0.448***	**-**	**-**	***0.776***	**-**	**-**	***0.000***	**-**	**-**	***0.235***	**-**	**-**	***0.235***
Gross/Weapon System Cost	**115,666.67**	**24**	**2.776**	**120,568.18**	**88**	**10.610**	**126,111.11**	**90**	**11.350**	**-**	**-**	**0.000**	**121,541.67**	**120**	**14.585**	**121,541.67**	**120**	**14.585**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4221 / LCS Module Weapons	Item Number / Title [DODIC]: 1 / LCS Module Weapons

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) Longbow Hellfire Missile(†)		2017 (1)	US Army / Huntsville, AL	MIPR	JAMS PO Huntsville	Sep 2017	Aug 2018	24	112,625.00	Y		
1.1.1) Longbow Hellfire Missile(†)		2018	US Army / Huntsville, AL	MIPR	JAMS PO Huntsville	Dec 2017	Nov 2018	88	115,472.73	Y		
1.1.1) Longbow Hellfire Missile(†)		2019	US Army / Huntsville, AL	MIPR	JAMS PO Huntsville	Mar 2019	Feb 2020	90	117,490.91	Y		
1.1.1) Longbow Hellfire Missile(†)	✓	2020	US Army / Huntsville, AL	MIPR	JAMS PO Huntsville	Dec 2019	Nov 2020	120	119,583.00	Y		

(†) indicates the presence of a P-21

Footnotes:

(1) Missiles to be procured from US Army stockpile. Once the Navy takes possession of the missiles, there are shipboard modifications and certifcations that need to be completed before they are delivered and become a fleet asset. This process takes 11 months.

Exhibit P-21, Production Schedule: PB 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2

P-1 Line Item Number / Title: 4221 / LCS Module Weapons

Item Number / Title [DODIC]: 1 / LCS Module Weapons

Cost Elements (Units in Each)							Fiscal Year 2017												Fiscal Year 2018												BALANCE
							Calendar Year 2017												Calendar Year 2018												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	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) Longbow Hellfire Missile																															
	1	2017	NAVY	24	0	24												A -	-	-	-	-	-	-	-	-	-	16	8		0
	1	2018	NAVY	88	0	88															A -	-	-	-	-	-	-	-	-		88
	1	2019	NAVY	90	0	90																									90
✓	1	2020	NAVY	120	0	120																									120
							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 2020 Navy | **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2

P-1 Line Item Number / Title: 4221 / LCS Module Weapons

Item Number / Title [DODIC]: 1 / LCS Module Weapons

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) Longbow Hellfire Missile																															
	1	2017	NAVY	24	24	0																									0
	1	2018	NAVY	88	0	88	-	8	8	10	16	16	16	14																	0
	1	2019	NAVY	90	0	90						A -	-	-	-	-	-	-	-	-	-	-	16	16	16	12	10	10	10		0
✓	1	2020	NAVY	120	0	120															A -	-	-	-	-	-	-	-	-	-	120
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4221 / LCS Module Weapons	**Item Number / Title [DODIC]:** 1 / LCS Module Weapons

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) Longbow Hellfire Missile																															
	1	2017	NAVY	24	24	0																									0
	1	2018	NAVY	88	88	0																									0
	1	2019	NAVY	90	90	0																									0
✓	1	2020	NAVY	120	0	120	-	16	16	16	16	16	16	14	10																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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4221 / LCS Module Weapons	**Item Number / Title [DODIC]:** 1 / LCS Module Weapons

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	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	US Army - Huntsville, AL	110	139	168	0	0	11	11	0	0	11	11

"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 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4223 / Cruiser Modernization Weapons

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	367.860	34.825	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	402.685
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	367.860	34.825	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	402.685
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**367.860**	**34.825**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**402.685**
(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 CG47 Class Ships operate independently, or as units of Carrier Strike Groups, and Surface Action Groups, in support of underway replenishment groups and Marine Amphibious Task Forces in multithreat environments that include air, surface, and subsurface threats. These ships respond to low intensity conflict/Coastal and Littoral Offshore Warfare scenarios, joint missions, as well as open ocean conflicts, providing and augmenting power projection and forward presence. In addition, these ships conduct air dominance, land attack, and force protection missions. The Cruiser Modernization warfighting improvements extend the CG47 Class Ships capabilities against projected threats well into the 21st century.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4223 / Cruiser Modernization Weapons

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / Cruiser Modernization Weapons [CC002]	P-5a			- / 367.860	- / 34.825	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 367.860**	**- / 34.825**	**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / 0.000**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY18 funds were identified as an approved source for 18-17 PA Omnibus 2018.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4223 / Cruiser Modernization Weapons	**Item Number / Title [DODIC]:** 1 / Cruiser Modernization Weapons [CC002]
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	367.860	34.825	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	367.860	34.825	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**367.860**	**34.825**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Flyaway Cost																		
Recurring Cost																		
1.1.1) MK 45 GUN MOUNTS(†) (1)	16,576K	21	348.088	15,634K	2	31.267	-	-	-	-	-	-	-	-	-	-	-	-
1.1.2) ENGINEERING SERVICES	-	-	19.772	-	-	3.558	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*367.860*	-	-	*34.825*	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Flyaway Cost	**-**	**-**	***367.860***	**-**	**-**	***34.825***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Gross/Weapon System Cost	**-**	**-**	**367.860**	**-**	**-**	**34.825**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

(†) indicates the presence of a P-5a

Footnotes:

(1) The Consolidated Appropriations Act, 2015, H.R. 83, Section 8110 re-appropriated and extended the Ship Modernization, Operations and Sustainment Fund (SMOSF) to provide for costs associated with the continued operations and modernization of eleven cruisers. Received $38,800,000 FY 2015 SMOSF for procurement of 5 inch 62 caliber MK45 Mod 2 gun assemblies/ equipment in support of Cruiser Modernization.

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4223 / Cruiser Modernization Weapons	**Item Number / Title [DODIC]:** 1 / Cruiser Modernization Weapons [CC002]

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) MK 45 GUN MOUNTS		2015	BAE / Louisville, KY	SS / CPFF	NSWC INDIAN HEAD	Aug 2015	Dec 2016	2	17,684K	Y		Jul 2015
1.1.1) MK 45 GUN MOUNTS		2016	BAE / Louisville, KY	SS / CPFF	NSWC INDIAN HEAD	Aug 2016	Dec 2017	2	15,084K	Y		Jul 2016
1.1.1) MK 45 GUN MOUNTS		2017	BAE / Louisville, KY	SS / CPFF	NSWC INDIAN HEAD	Aug 2017	Dec 2018	2	35,600K	Y		Jul 2017
1.1.1) MK 45 GUN MOUNTS		2018	BAE / Louisville, KY	SS / CPFF	NSWC INDIAN HEAD	Jun 2018	Dec 2019	2	15,634K	Y		May 2018

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems

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

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	134.261	16.925	21.465	0.000	7.160	7.160	13.425	12.772	9.739	9.934	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	134.261	16.925	21.465	0.000	7.160	7.160	13.425	12.772	9.739	9.934	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**134.261**	**16.925**	**21.465**	**0.000**	**7.160**	**7.160**	**13.425**	**12.772**	**9.739**	**9.934**	**Continuing**	**Continuing**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	2.876	0.041	0.000	0.225	0.225	0.084	0.120	0.121	-	-	3.467
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include $0.0M for Base and $7.16M for Overseas Contingency Operations (OCO); of which $7.16M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

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

[P5 / ARCHERFISH Neutralizer]: AN/ASQ-235 - Airborne Mine Neutralization System (AMNS) AMNS will provide the MH-60S helicopter with the capability to neutralize bottom and moored mines using an expendable mine neutralization device. The AMNS was tested on the MH-53E helicopter to prove the neutralization effectiveness. The system will be deployed from the MH-60S helicopter as part of the Littoral Combat Ship (LCS) Mine Countermeasure (MCM) Mission Package. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA). AMNS procurements are funded with OPN for the AMNS combat system and WPN for the AMNS Archerfish neutralizer.

[P5 - 2 / SEAFOX Neutralizer]: SEAFOX neutralizers are used from the AN/ASQ-232, Airborne Mine Neutralization System - SEAFOX (AMNS-SF), the AN/SLQ-60, Surface Mine Neutralization System - SEAFOX (SMNS-SF), and the SEAFOX Portable Mine Neutralization System (PMNS). Airborne combat systems are deployed from the MH-53E SEA DRAGON helicopters. Surface combat systems are deployed from the MCM-1 Avenger Class ships. The portable (PMNS) combat system is deployed from a Rigid Hull Inflatable Boat (RHIB).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 2: Modification of Guns And Gun Mounts	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) 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 / ARCHERFISH Mine Neutralization Combat Rounds	P-5a, P-21			- / 90.982	- / 12.927	- / 12.632	- / 0.000	- / 6.471	- / 6.471
P-5	2 / SEAFOX Mine Neutralization Combat Rounds	P-5a			- / 43.279	- / 3.998	- / 8.833	- / 0.000	- / 0.689	- / 0.689
P-40	**Total Gross/Weapon System Cost**				**- / 134.261**	**- / 16.925**	**- / 21.465**	**- / 0.000**	**- / 7.160**	**- / 7.160**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

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

Justification:
FY 2020 funding supports the baseline program to procure the neutralization capability for the current in service mission (SEAFOX - MH-53E helicopters and MCM Class Ships) and the neutralization capability for the organic mission (Archerfish MH-60S and LCS). This capability is currently deployed around the world to meet the current operational mine warfare mission demand for these systems and to maintain the total munitions requirement inventory.

The FY 2020 funding request was reduced by $4.857 million to account for the availability of prior year execution balances.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems	**Item Number / Title [DODIC]:** 1 / ARCHERFISH Mine Neutralization Combat Rounds
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	90.982	12.927	12.632	0.000	6.471	6.471
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	90.982	12.927	12.632	0.000	6.471	6.471
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**90.982**	**12.927**	**12.632**	**0.000**	**6.471**	**6.471**
(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)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - ARCHERFISH Neutralizer Cost																		
Recurring Cost																		
1.1.1) AN/ASQ-235 - AMNS - MH-60S neutralizer(†)	137,581.16	499	68.653	141,682.53	82	11.618	142,414.63	82	11.678	-	-	0.000	148,736.48	38	5.652	148,736.48	38	5.652
Subtotal: Recurring Cost	-	-	*68.653*	-	-	*11.618*	-	-	*11.678*	-	-	*0.000*	-	-	*5.652*	-	-	*5.652*
Subtotal: Hardware - ARCHERFISH Neutralizer Cost	**-**	**-**	***68.653***	**-**	**-**	***11.618***	**-**	**-**	***11.678***	**-**	**-**	***0.000***	**-**	**-**	***5.652***	**-**	**-**	***5.652***
Support Cost																		
2.1) Production Engineering	-	-	11.125	-	-	0.619	-	-	0.289	-	-	0.000	-	-	0.319	-	-	0.319
2.2) ILS/PUBS/Tech Data	-	-	8.102	-	-	0.411	-	-	0.429	-	-	0.000	-	-	0.212	-	-	0.212
2.3) Support Equipment	-	-	3.102	-	-	0.279	-	-	0.236	-	-	0.000	-	-	0.288	-	-	0.288
Subtotal: Support Cost	**-**	**-**	***22.329***	**-**	**-**	***1.309***	**-**	**-**	***0.954***	**-**	**-**	***0.000***	**-**	**-**	***0.819***	**-**	**-**	***0.819***
Gross/Weapon System Cost	**-**	**-**	**90.982**	**-**	**-**	**12.927**	**-**	**-**	**12.632**	**-**	**-**	**0.000**	**-**	**-**	**6.471**	**-**	**-**	**6.471**

Remarks:
[Hardware] AN/ASQ-235 - Airborne Mine Neutralization System (AMNS)
AMNS provides the MH-60S helicopter with the capability to neutralize bottom and moored mines using an expendable mine neutralization device. The AMNS was tested on the MH-60S helicopter to prove the neutralization effectiveness. The system is deployed from the MH-60S helicopter as part of the Littoral Combat Ship (LCS) Mine Countermeasure (MCM) Mission Package. This capability will be of critical

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4225 / Airborne Mine Neutralization Systems	Item Number / Title [DODIC]: 1 / ARCHERFISH Mine Neutralization Combat Rounds
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA). AMNS procurements are funded with OPN for the AMNS combat system and WPN for the AMNS Archerfish neutralizer.

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems	**Item Number / Title [DODIC]:** 1 / ARCHERFISH Mine Neutralization Combat Rounds

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty *(Each)*	Unit Cost *($)*	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) AN/ASQ-235 - AMNS - MH-60S neutralizer(†)		2018	BAE / Portsmith, UK	SS / FFP	NAVSEA	Jun 2018	Jun 2019	82	141,682.53	Y		May 2018
1.1.1) AN/ASQ-235 - AMNS - MH-60S neutralizer(†)		2019	BAE / Portsmith, UK	SS / FP	NAVSEA	Jun 2019	Jun 2020	82	142,414.63	Y		May 2018
1.1.1) AN/ASQ-235 - AMNS - MH-60S neutralizer(†)	✓	2020	BAE / Portsmith, UK	SS / FP	NAVSEA	Jun 2020	Jun 2021	38	148,736.48	Y		May 2019

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems	**Item Number / Title [DODIC]:** 1 / ARCHERFISH Mine Neutralization Combat Rounds

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) AN/ASQ-235 - AMNS - MH-60S neutralizer																															
Prior Years Deliveries: 499																															
	1	2018	NAVY	82	0	82									A -	-	-	-	-	-	-	-	-	-	-	-	10	10	10	10	42
	1	2019	NAVY	82	0	82																					A -	-	-	-	82
✓	1	2020	NAVY	38	0	38																									38
							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 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems	**Item Number / Title [DODIC]:** 1 / ARCHERFISH Mine Neutralization Combat Rounds

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) AN/ASQ-235 - AMNS - MH-60S neutralizer																															
Prior Years Deliveries: 499																															
	1	2018	NAVY	82	40	42	10	10	10	10	2																				0
	1	2019	NAVY	82	0	82	-	-	-	-	-	-	-	-	10	10	10	10	10	10	10	10	2								0
✓	1	2020	NAVY	38	0	38									A -	-	-	-	-	-	-	-	-	-	-	-	10	10	10	8	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 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems	**Item Number / Title [DODIC]:** 1 / ARCHERFISH Mine Neutralization Combat Rounds

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2020	1-8-5 For 2020	MAX For 2020	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	BAE - Portsmith, UK	25	480	1,440	0	9	12	21	0	9	12	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-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	**P-1 Line Item Number / Title:** 4225 / Airborne Mine Neutralization Systems	**Item Number / Title [DODIC]:** 2 / SEAFOX Mine Neutralization Combat Rounds
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	43.279	3.998	8.833	0.000	0.689	0.689
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	43.279	3.998	8.833	0.000	0.689	0.689
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**43.279**	**3.998**	**8.833**	**0.000**	**0.689**	**0.689**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - SEAFOX Neutralizer Cost																		
Recurring Cost																		
1.1.1) SEAFOX Neutralizer(†)	84,754.39	399	33.817	97,657.00	35	3.418	98,310.00	77	7.570	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) SEAFOX Refurbishment Upgrade Rounds	25,000.00	72	1.800	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) Battery Replacement(†)	8,000.00	50	0.400	-	-	0.000	8,500.00	70	0.595	-	-	0.000	8,700.00	33	0.287	8,700.00	33	0.287
Subtotal: Recurring Cost	-	-	*36.017*	-	-	*3.418*	-	-	*8.165*	-	-	*0.000*	-	-	*0.287*	-	-	*0.287*
Subtotal: Hardware - SEAFOX Neutralizer Cost	**-**	**-**	***36.017***	**-**	**-**	***3.418***	**-**	**-**	***8.165***	**-**	**-**	***0.000***	**-**	**-**	***0.287***	**-**	**-**	***0.287***
Support Cost																		
2.1) Production Engineering	-	-	3.439	-	-	0.175	-	-	0.165	-	-	0.000	-	-	0.100	-	-	0.100
2.2) ILS/PUBS/Tech Data	-	-	2.335	-	-	0.205	-	-	0.218	-	-	0.000	-	-	0.190	-	-	0.190
2.3) Support Equipment	-	-	1.488	-	-	0.200	-	-	0.285	-	-	0.000	-	-	0.112	-	-	0.112
Subtotal: Support Cost	**-**	**-**	***7.262***	**-**	**-**	***0.580***	**-**	**-**	***0.668***	**-**	**-**	***0.000***	**-**	**-**	***0.402***	**-**	**-**	***0.402***
Gross/Weapon System Cost	**-**	**-**	**43.279**	**-**	**-**	**3.998**	**-**	**-**	**8.833**	**-**	**-**	**0.000**	**-**	**-**	**0.689**	**-**	**-**	**0.689**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 04 / 2	P-1 Line Item Number / Title: 4225 / Airborne Mine Neutralization Systems	Item Number / Title [DODIC]: 2 / SEAFOX Mine Neutralization Combat Rounds

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) SEAFOX Neutralizer		2018	Atlas North America / Yorktown, VA	SS / FFP	NAVSEA	Mar 2018	Sep 2019	35	97,657.00	Y		
1.1.1) SEAFOX Neutralizer		2019	Atlas North America / Yorktown, VA	SS / FFP	NAVSEA	Mar 2019	Sep 2020	77	98,310.00	Y		
1.1.3) Battery Replacement		2017	NSWC Indian Head / Indian Head MD	WR	NAVSEA	Jun 2017	Dec 2017	50	8,000.00	Y		
1.1.3) Battery Replacement		2019	NSWC Indian Head / Indian Head MD	WR	NAVSEA	Dec 2018	Jun 2019	70	8,500.00	Y		
1.1.3) Battery Replacement	✓	2020	NSWC Indian Head / Indian Head MD	WR	NAVSEA	Mar 2020	Sep 2020	33	8,700.00	N		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 04: Other Weapons / BSA 4: Other		**P-1 Line Item Number / Title:** 4500 / Cancelled Account Adjustments	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A	
Line Item MDAP/MAIS Code: N/A			

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	0.030
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	0.030
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.030**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**0.030**
(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:
This line finances cancelled account adjustments.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 06: Spares and Repair Parts / BSA 1: Spares And Repair Parts	**P-1 Line Item Number / Title:** 6120 / Spares and Repair Parts

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

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	102.287	135.688	0.000	126.138	126.138	146.130	145.996	145.233	147.387	Continuing	Continuing
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	102.287	135.688	0.000	126.138	126.138	146.130	145.996	145.233	147.387	Continuing	Continuing
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**102.287**	**135.688**	**0.000**	**126.138**	**126.138**	**146.130**	**145.996**	**145.233**	**147.387**	**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:

FY 2020 funding totals include $0.0M for Base and $126.138M for Overseas Contingency Operations (OCO); of which $126.138M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Weapons Procurement, Navy (WPN-6) budget line item is made up of three sub budget line items (SUBLI); SUBLI (20) Initial Spares, SUBLI (30) Outfitting Spares, and SUBLI (90) Vender Direct spares. Together they provide all Weapons Procurement, Navy (WPN-6) Spares funding in support of Navy surface ordnance, which consists of all guns, associated equipment (hoists, shields, etc.), and related material support necessary to support fleet readiness capabilities. Funding also provides for Initial and Vendor Direct spares, during the maintenance cycle, to support Anti-Submarine Warfare weapons and support equipment. Initial spares are components, assemblies, and sub-assemblies that are provided and stocked on active ships, shore sites, and expeditionary units as spare parts for newly fielded weapon systems. Outfitting spares are Spare parts that the Navy Supply System has bought-in to respond to meet fleet requisitions for newly installed/modernized systems. Spares funding is required for the initial outfitting and repair of missiles or components that fail or are damaged while in the Fleet, and for expendable items, such as guided missiles and non-recoverable target drones. For recoverable target drones, additional spares and repair parts are required to repair damage incurred while in flight, damage incurred during recovery operations, and for control and telemetry equipment.

This budget line item also provides for Initial and Vendor Direct spares, during the in-service maintenance cycle, to support organic and commercial depot repair/refurbishment activities for NAVAIR managed air-launched weapons and associated equipment. Air launched weapons consist of anti-ship, anti-radar, anti-armor, air-to-air, and air-to-surface weapons including Advanced Anti-Radiation Guided Missile (AARGM, AARGM-ER), High Speed Anti-Radiation Missile (HARM), Harpoon (air/surface/sub-surface), Hellfire, Joint Standoff Weapons (JSOW), Air-to-Surface Guided Missiles (AGM-65), Long Range Anti-Ship Missile (LRASM), Airborne Intercept Missile (AIM-7, AIM-9, AIM-120), Standard Land Attack Missiles (SLAM-ER), Small Diameter Bomb Increment (SDB II), Joint Air-to-Ground Missiles (JAGM), Miniature Air Launched Decoy (MALD) and other air-launched guided weapons that fall under special access program control.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 06: Spares and Repair Parts / BSA 1: Spares And Repair Parts	**P-1 Line Item Number / Title:** 6120 / Spares and Repair Parts

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

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)	Quantity / Total Cost (Each) / ($ M)
P-18	WPN spares				- / -	- / 102.287	- / 135.688	- / 0.000	- / 126.138	- / 126.138
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 102.287**	**- / 135.688**	**- / 0.000**	**- / 126.138**	**- / 126.138**

Title represents the P-18 Title for Spares.

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

Justification:
The FY2020 funding request was reduced by $14.692 million to account for the availability of prior year execution balances.

Initial Spares
FY 2020 Program Increase Justifications:

2206/ Increase funding in Advanced Medium Range Air-to-Air Missile (AMRAAM) initial spares is to procure the additional requirement of 20 CATM Guidance Sections.

2209/ Increase funding in Sidewinder initial spares is due to an increase in depot repairs since AIM-9X-2 fielding, resulting in an increase in spares required.

2280/ Increase funding in Aerial Targets initial spares is to support the BQM-177A target production buy.

2290/ Other Missile Support Equipment - Increase provides for MK41 vertical launch system, to support missile launch requirements.

2327/ Increase funding in HARM Mods initial spares is to procure guidance and control sections spares for forward positioning to reduce turnaround time for repairs at the depot. This is necessary due to the limited end item quantities currently available to the Fleet.

4129/ Small Arms and Weapons - Increase supports Stabilized Small Arms Mount (SSAM) MK50 machine guns.

Replenishment Spares
FY 2020 Program Increase Justifications:

2242/ Rolling Airframe Missile (RAM) - Increase supports section and component level spares for the growing population of Block 2 missiles. Combat useable RAM assets are projected to drop 43% over FYDP without spares.

9203/ Spares for NAVAIR - Increase in replenishment spares requirement between FY 2019 and FY 2020 is based on life-cycle modeling that indicates an 18.8% increase in missile demand for AIM-9X. This demand is driven by the end of remaining AIM-9X Block I warranties, coupled with the increase of fielded Block II missiles based on existing Program of Record (POR) quantities. Additionally, the missile demand increase of 18.8% from FY 2019 to FY 2020 is due to increased flight hours and simultaneously experiencing higher than anticipated failure rates. AMRAAM requirements increased due to higher unit costs for the parts being procured. JSOW requirements increased due to a significant increase in demand. LRASM had a significant increase in demand for three specific parts. Increased funding in Spares for NAVAIR will decrease backlogged repair pipeline as well as fielding more assets to keep pace with operational requirements. These funds will also enable platforms to avoid depot interruptions and potential startup costs.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N: Weapons Procurement, Navy / BA 06: Spares and Repair Parts / BSA 1: Spares And Repair Parts	**P-1 Line Item Number / Title:** 6120 / Spares and Repair Parts	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

4217/ Gun Mount Mods - Increased funding in Gun Mount Mods spares to support MK-46 Gun Weapons Systems (GWS), MK-38 (MOD3 MGS), MK-45, MK-110, and MK75/76 MM and fielding more assets to keep pace with operational requirements. Vendor direct spares requirement is increasing due to support of Shipbuilding & Conversion, Navy (SCN) procured guns for Littoral Combat Systems (LCS) and Destroyer Designated Guided (DDG) 1000.

Exhibit P-18, Initial and Replenishment Spare and Repair Parts Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 06 / 1	P-1 Line Item Number / Title: 6120 / Spares and Repair Parts	Title: WPN spares

End Item Line Item Number / Name [MDAP/MAIS]	Prior Years ($ M)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 Base ($ M)	FY 2020 OCO ($ M)	FY 2020 Total ($ M)
Initial						
BA 02 - Other Missiles						
2206 / AMRAAM	-	3.127	0.692	0.000	8.910	8.910
2209 / Sidewinder	-	3.208	1.531	0.000	3.280	3.280
2280 / Aerial Targets	-	4.693	1.551	0.000	2.712	2.712
2290 / Other Missile Support	-	1.032	0.407	0.000	1.382	1.382
2307 / Evolved Sea Sparrow Missile (ESSM)	-	3.665	-	0.000	-	0.000
2327 / HARM Mods	-	-	-	0.000	3.665	3.665
9203 / Spares for NAVAIR	-	0.244	-	0.000	-	0.000
BA 03 - Torpedoes and Related Equipment						
3215 / MK-54 Torpedo Mods	-	15.406	6.535	0.000	0.697	0.697
3225 / MK-48 Torpedo ADCAP Mods	-	2.916	1.904	0.000	1.376	1.376
3301 / Torpedo Support Equipment	-	1.064	-	0.000	-	0.000
BA 04 - Other Weapons						
4129 / Small Arms and Weapons	-	-	-	0.000	0.046	0.046
4206 / Coast Guard Weapons	-	0.751	0.388	0.000	0.722	0.722
4217 / Gun Mount Mods	-	3.080	1.013	0.000	1.102	1.102
4225 / Airborne Mine Neutralization Systems	-	2.876	0.041	0.000	0.225	0.225
Subtotal: Initial	***-***	***42.062***	***14.062***	***0.000***	***24.117***	***24.117***
Replenishment						
BA 02 - Other Missiles						
2101 / Tomahawk	-	13.518	25.096	0.000	23.799	23.799
2234 / Standard Missile	-	13.974	20.651	0.000	14.426	14.426
2242 / Rolling Airframe Missile (RAM)	-	2.042	2.547	0.000	8.797	8.797
2307 / Evolved Sea Sparrow Missile (ESSM)	-	7.227	13.866	0.000	8.390	8.390
9203 / Spares for NAVAIR	-	7.408	16.062	0.000	18.964	18.964
BA 03 - Torpedoes and Related Equipment						
3141 / ASW Targets	-	3.964	2.552	0.000	2.026	2.026
3215 / MK-54 Torpedo Mods	-	2.063	0.929	0.000	1.418	1.418
3225 / MK-48 Torpedo ADCAP Mods	-	0.137	1.413	0.000	0.473	0.473
3302 / ASW Range Support	-	0.610	0.952	0.000	0.640	0.640
6231 / 6T COG	-	1.632	7.433	0.000	6.410	6.410

Exhibit P-18, Initial and Replenishment Spare and Repair Parts Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1507N / 06 / 1	**P-1 Line Item Number / Title:** 6120 / Spares and Repair Parts	**Title:** WPN spares

End Item Line Item Number / Name [MDAP/MAIS]	Prior Years ($ M)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 Base ($ M)	FY 2020 OCO ($ M)	FY 2020 Total ($ M)
BA 04 - Other Weapons						
4129 / Small Arms and Weapons	-	-	-	0.000	0.037	0.037
4205 / Close-In Wpns Sys (CIWS) Mods	-	0.152	11.725	0.000	4.929	4.929
4206 / Coast Guard Weapons	-	0.221	0.337	0.000	-	0.000
4217 / Gun Mount Mods	-	5.978	8.763	0.000	10.913	10.913
4225 / Airborne Mine Neutralization Systems	-	1.299	9.300	0.000	0.799	0.799
Subtotal: Replenishment	**-**	***60.225***	***121.626***	***0.000***	***102.021***	***102.021***
Total Cost (Initial + Replenishment)	**-**	**102.287**	**135.688**	**0.000**	**126.138**	**126.138**

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