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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604227N / <i>Harpoon Modifications</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	0.000	2.302	0.697	0.000	-	0.000	-	-	-	-	-	-
1843: <i>Harpoon Block II+</i>	0.000	2.302	0.697	0.000	-	0.000	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Encapsulated (ENCAP) Harpoon Block IC (HIC) missiles provides Navy Los Angeles-class nuclear attack submarines (SSN) a subsurface-launched, all-weather, long-range Anti-Surface Warfare (ASuW) missile to attack enemy warships at stand-off ranges. The ENCAP Reconstitution Program will refurbish and recertify 60 ENCAP HIC all-up rounds currently in deep storage to an "as-new" war-ready material condition (ENCAP Harpoons were placed in deep storage in 1996). The controlled storage the missiles were placed in have preserved the material condition of the weapon system, allowing for relatively quick recertification and reissue. Due to the ease and speed of missile recertification's the ENCAP HIC Reconstitution Program will fill a critical and time sensitive ASuW capability gap and meet Speed to the Fleet requirements.

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it requires development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

Harpoon Block II+ development program concluded in FY 2021.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	2.302	0.697	0.000	-	0.000
Current President's Budget	2.302	0.697	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604227N / Harpoon Modifications				Project (Number/Name) 1843 / Harpoon Block II+			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
1843: Harpoon Block II+	0.000	2.302	0.697	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Encapsulated (ENCAP) Harpoon Block IC (HIC) missiles provides Navy Los Angeles-class nuclear attack submarines (SSN) a subsurface-launched, all-weather, long-range Anti-Surface Warfare (ASuW) missile to attack enemy warships at stand-off ranges. The ENCAP Reconstitution Program will refurbish and recertify 60 ENCAP HIC all-up rounds currently in deep storage to an "as-new" war-ready material condition (ENCAP Harpoons were placed in deep storage in 1996). The controlled storage the missiles were placed in 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 and time sensitive ASuW capability gap and meet Speed to the Fleet requirements.

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it requires development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: ENCAP Reconstitution Program	2.302	0.697	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2021 Plans: The ENCAP Reconstitution Program will require a collective, cooperative NAVAIR and NAVSEA effort to re-integrate ENCAP AURs and capability back into USN LA-class nuclear-powered attack submarines. Navy efforts within NAVSEA and NAVAIR will include: finalization of refurbishment, conclusion of safety, shock, and implosion studies and analysis with supporting tests, reports, and engineering documents.					
FY 2022 Base Plans: N/A					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: The FY2021 to FY2022 decrease of \$0.697 million is due to the completion of development efforts.					
Accomplishments/Planned Programs Subtotals	2.302	0.697	0.000	0.000	0.000

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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604227N / Harpoon Modifications	Project (Number/Name) 1843 / Harpoon Block II+
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2020	FY 2021	FY 2022	FY 2022	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Cost To	
			Base	OCO	Total					Complete	Total Cost
• WPN/2326: Harpoon Mods	23.585	0.000	0.000	-	0.000	-	-	-	-	-	-
• OPN/5227: Harpoon Support Equipment	0.000	0.000	0.204	-	0.204	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The Encapsulated Harpoon Block IC (ENCAP HIC) Reconstitution Program will refurbish and recertify 60 ENCAP HICs to an as-new war-ready material condition. Coordinated contracting efforts between NAVAIR and NAVSEA offices will reintegrate and supply ENCAP HICs. Vendor support for all associated activities will leverage existing vendor relationships, and exiting contracts when able. All required manufacturing processes, support facilities, and tooling currently exist and are in current use for this program. Due to updated munitions requirements analysis indicating that sufficient Harpoon Block II+ Kits were procured through FY 2020, procurement program concluded end of FY 2020 and will begin fielding in FY 2022.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604227N / Harpoon Modifications	Project (Number/Name) 1843 / Harpoon Block II+
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	SS/CPPIF	Mustang/L3 : Plano, TX	0.000	0.000		0.000		0.000		-		0.000	-	-	-
Missile Support- Encap	C/CPFF	BSC : Chantilly, VA	0.000	0.124	Feb 2020	0.200	Feb 2021	0.000		-		0.000	-	-	-
Subtotal			0.000	0.124		0.200		0.000		-		0.000	-	-	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.000		-		0.000	-	-	-
Missile Support - ENCAP CSS	C/CPFF	MCLAUGHLIN RESEARCH CORPORATION : New London, CT	0.000	0.327	May 2020	0.000		0.000		-		0.000	-	-	-
Subtotal			0.000	0.327		0.000		0.000		-		0.000	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T&E - Encap	WR	NUWC Naval Undersea Warfare Center : Newport, RI	0.000	1.851	Dec 2019	0.497	Nov 2020	0.000		-		0.000	-	-	-
Subtotal			0.000	1.851		0.497		0.000		-		0.000	-	-	N/A

Remarks
Test and Evaluation cost for the Harpoon HIC ENCAP reconstitution efforts includes conclusion of sea trial activities, and safety, shock, and implosion studies and analysis.

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	2.302	0.697	0.000	-	0.000	-	-	N/A

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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
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<u>Remarks</u>									
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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604227N / Harpoon Modifications	Project (Number/Name) 1843 / Harpoon Block II+
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HARPOON MODIFICATION	FY 2020				FY 2021				FY 2022				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Program Milestones										◆			
Test & Evaluation Activities		Developmental and Test				◆							
Support				ENCAP Refurbishment and Maintenance									

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604227N / <i>Harpoon Modifications</i>	Project (Number/Name) 1843 / <i>Harpoon Block II+</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Harpoon Modifications</i>				
Program Milestones: Fielding	1	2022	1	2022
Test and Evaluation: Developmental Tests	2	2020	1	2021
Test and Evaluation: Sea Trials	2	2021	2	2021
Support: ENCAP Refurbishment and Maintenance	4	2020	4	2022