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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604580N I (U)Virginia Payload Module (VPM)							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	420.519	70.579	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	491.098
4500: VIRGINIA Payload Module	420.519	70.579	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	491.098
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): 516												
Note 1. Detailed design funding for this project transitions to SCN (BLI: 2013) beginning in FY17 to support VPM production beginning in FY20.												
A. Mission Description and Budget Item Justification The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is designed to fulfill this need. It will counter the potential threats of the next century in a multi- mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Payload Module (VPM). VPM mitigates and will recapitalize the conventional TOMAHAWK Land Attack Missile (TLAM) gap created by the retirement of SSGNs in the late 2020s while maintaining current platform requirements. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.												
B. Program Change Summary (\$ in Millions)				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total				
Previous President's Budget				72.861	0.000	0.000	-	0.000				
Current President's Budget				70.579	0.000	0.000	-	0.000				
Total Adjustments				-2.282	0.000	0.000	-	0.000				
• Congressional General Reductions				-	-							
• Congressional Directed Reductions				-	-							
• Congressional Rescissions				-	-							
• Congressional Adds				-	-							
• Congressional Directed Transfers				-	-							
• Reprogrammings				-	-							
• SBIR/STTR Transfer				-2.282	0.000							
• Rate/Misc Adjustments				0.000	0.000	0.000	-	0.000				

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<u>Change Summary Explanation</u> Program ends in FY19 and transitions to SCN line item 2013 Virginia Class Submarines for implementation in the pending Virginia Block V contract.		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)				Project (Number/Name) 4500 / VIRGINIA Payload Module			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
4500: VIRGINIA Payload Module	420.519	70.579	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	491.098
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 516												
A. Mission Description and Budget Item Justification This project encompasses Navy RDT&E efforts required to incorporate a modular design for future VIRGINIA Class Submarines (VCS) which integrates additional strike payload capacity for Tomahawk Land Attack and follow on missiles. The design is targeted for VCS Block V (FY19-23 ships).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Non-Propulsion Electronics System (NPES) Engineering								10.418	0.000	0.000	0.000	0.000
Articles:								-	-	-	-	-
FY 2019 Plans: N/A												
FY 2020 Base Plans: N/A												
FY 2020 OCO Plans: N/A												
Title: Hull, Mechanical, and Electrical (HM&E) Systems Engineering								60.161	0.000	0.000	0.000	0.000
Articles:								-	-	-	-	-
FY 2019 Plans: N/A												
FY 2020 Base Plans: N/A												
FY 2020 OCO Plans: N/A												
Accomplishments/Planned Programs Subtotals								70.579	0.000	0.000	0.000	0.000

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Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604580N I (U)Virginia Payload Module (VPM)				Project (Number/Name) 4500 I VIRGINIA Payload Module				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• SCN/2013: VIRGINIA Class Submarine	5,450.911	7,137.077	9,925.498	-	9,925.498	6,123.064	5,968.338	6,080.771	7,052.398	28,976.120	148,078.924	
• OPN/0942: Virginia Class Support Equipment	46.610	66.328	28.465	-	28.465	23.263	22.910	23.326	23.792	Continuing	Continuing	
• OMN/1B2B: Ship Operational Support and Training	997.328	1,017.899	993.535	-	993.535	1,019.377	1,044.931	1,070.013	0.000	0.000	6,924.206	
• RDT&E/0604558N/1947: New Design SSN HM&E	81.462	104.968	80.405	-	80.405	162.514	208.425	236.878	241.605	Continuing	Continuing	
• RDT&E/0604558N/1950: New Design SSN Combat Sys Dev	33.767	40.604	37.485	-	37.485	36.341	37.138	37.869	38.626	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing General Dynamics Electric Boat (GDEB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries - Newport News Shipbuilding (HII-NNS), to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, GDEB remained the design yard for the VIRGINIA Class Submarine and HII-NNS became a part of the IPPD process. The Program Office is managing two Multi-Year Procurement (MYP) contracts. The first is for the Block III (FY09-13) ships. The second is for the Block IV (FY14-18) ships awarded April 2014. All Block I & II ships (SSNs 774-783) have been delivered. The first seven Block III ships, SSN 784-790, have delivered, with one remaining ship under construction. Ten Block IV ships are awarded and under construction. The program is currently negotiating the fourth MYP (Block V) contract that will include 10 SSNs (FY19-23) and will incorporate acoustic superiority modifications on all SSNs and VPM on seven SSNs with an option to award a third SSN in FY20, FY22 and FY23. The third FY20 SSN was added during the PB2020 cycle however, due to the late add with no benefit of Advance Procurement or Economic Order Quantity funding in prior years, it will reflect a construction schedule more in line with an FY23 SSN. This contract is anticipated to award in second quarter FY2019.												
E. Performance Metrics												
Preliminary Design Review												
Critical Design Review												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604580N I (U)Virginia Payload Module (VPM)				Project (Number/Name) 4500 I VIRGINIA Payload Module					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	WR	NSWC : Carderock, MD	48.766	2.246	Nov 2017	0.000		0.000		-		0.000	15.815	66.827	-
Component Development	WR	NUWC : Newport, RI	28.781	1.853	Nov 2017	0.000		0.000		-		0.000	20.538	51.172	-
Component Development	C/CPFF	Electric Boat : Groton, CT	320.722	60.812	Nov 2017	0.000		0.000		-		0.000	132.370	513.904	-
Component Development	C/CPFF	GD-AIS : Pittsfield, MA	18.600	4.975	Jan 2018	0.000		0.000		-		0.000	0.000	23.575	-
Component Development	WR	PMA 280/281 : Pax River, MD	2.700	0.000	Jan 2018	0.000		0.000		-		0.000	0.000	2.700	-
Component Development	SS/CPFF	ARL/PSU : UNIVERSITY PARK, PA	0.200	0.000	Jan 2018	0.000		0.000		-		0.000	0.000	0.200	-
Component Development	WR	NSWC : Philadelphia, PA	0.000	0.287	Nov 2017	0.000		0.000		-		0.000	0.000	0.287	-
Component Development	C/CPFF	Raytheon : Tuscon, AZ	0.000	0.406	Jan 2018	0.000		0.000		-		0.000	0.000	0.406	-
Subtotal			419.769	70.579		0.000		0.000		-		0.000	168.723	659.071	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPAF	SEAPORT : Rockville, MD	0.750	0.000		0.000		0.000		-		0.000	0.500	1.250	-
Subtotal			0.750	0.000		0.000		0.000		-		0.000	0.500	1.250	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			420.519	70.579		0.000		0.000		-		0.000	169.223	660.321	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy

Date: March 2019

Appropriation/Budget Activity

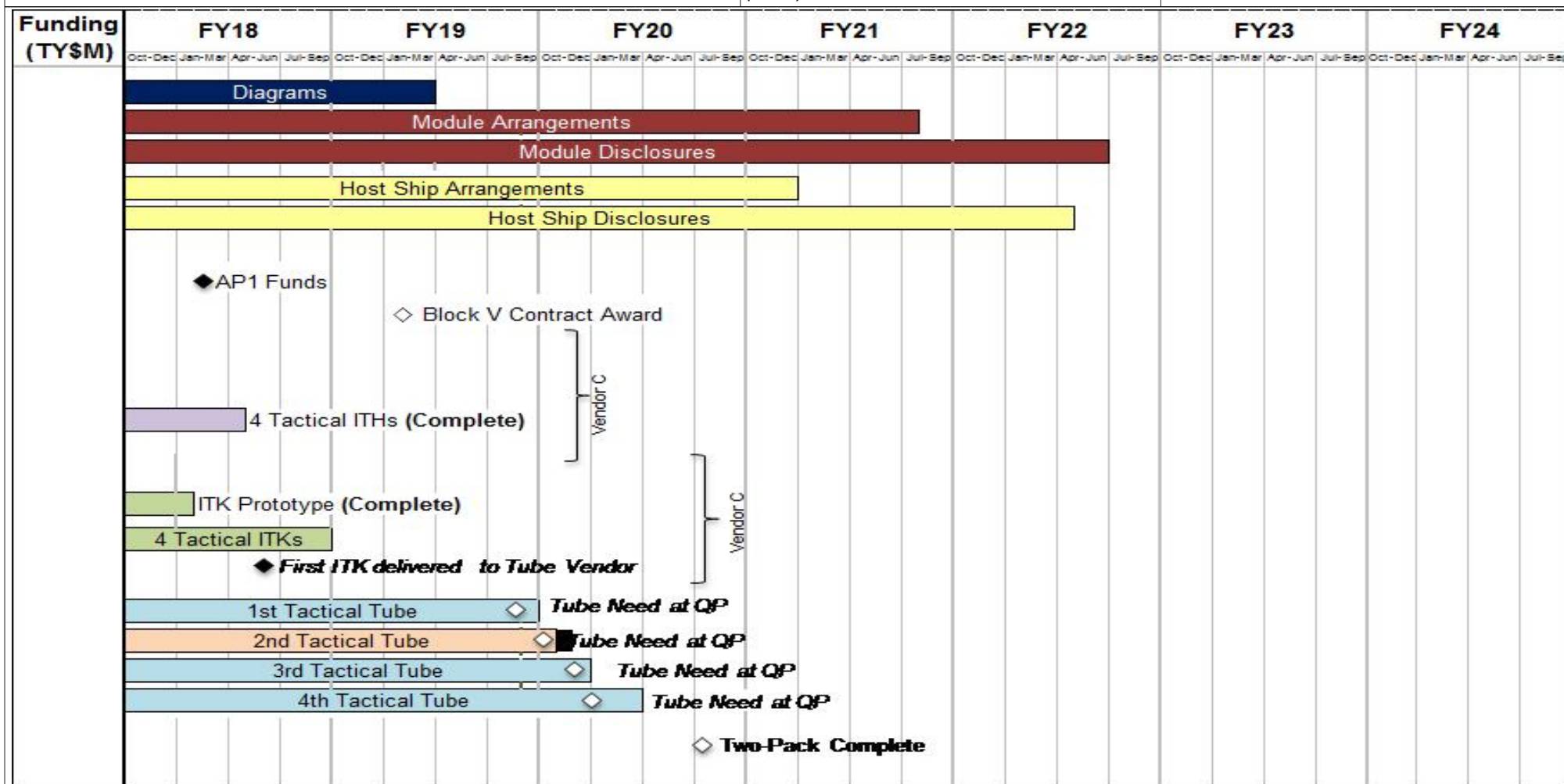
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R-1 Program Element (Number/Name)

PE 0604580N I (U)Virginia Payload Module (VPM)

Project (Number/Name)

4500 I VIRGINIA Payload Module



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4500				
Diagrams	1	2018	2	2019
Module Arrangements	1	2018	4	2021
Module Design Development	1	2018	3	2022
Host Ship Arrangements	1	2018	1	2021
Host Ship Disclosures	1	2018	3	2022
Block V Contract Award	2	2019	2	2019
Vendor C 4 Tactical ITHs	1	2018	3	2018
Vendor C ITK Prototype	1	2018	2	2018
Vendor C 4 Tactical ITKs	1	2018	1	2019
1st Tactical Tube	1	2018	4	2019
2nd Tactical Tube	1	2018	1	2020
3rd Tactical Tube	1	2018	1	2020
4th Tactical Tube	1	2018	2	2020
Two-Pack Complete	4	2020	4	2020