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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	30.164	132.108	361.582	348.788	-	348.788	351.183	349.599	347.532	345.278	Continuing	Continuing
2368: <i>SSN(X) Class Submarine Development</i>	30.164	132.108	361.582	348.788	-	348.788	351.183	349.599	347.532	345.278	Continuing	Continuing

Note

This Program Element (PE)/ Project was established in FY 2021 for the development of the SSN(X) Class Submarine to replace the VIRGINIA Class Submarine.

The PB 2025 budget reflects the shift of lead ship authorization from the mid-2030's (as submitted in PB24) to 2040 due to budget limitations. The FY2025 funding level supports 2040 lead-ship authorization. Near term continued funding is required to: continue concept, technology, and effectiveness studies to inform requirements development and to manage program risk; continue prototyping for long-lead technology (including propulsor and launchers), testing (including propulsor, launchers, and materials) and R&D infrastructure upgrades to ensure readiness for planned authorization in 2040. The requested FY2025 funding levels are necessary to ensure design and technology maturity and infrastructure readiness at construction start while maintaining the design industrial base at needed/sustaining levels.

A. Mission Description and Budget Item Justification

The U.S. Navy must protect the security of the American people by defending against great powers, regional adversaries, and transnational threats. Strategic Competition is increasing the demand on the U.S. Navy submarine force. Submarines will be the principal method to deterring strategic competition aggression and will be the first to fight. The U.S. Navy must meet the rising challenge by delivering a new attack submarine. SSN(X) will be designed to counter the growing threat posed by near peer adversary competition for undersea supremacy. It will provide greater speed, increased horizontal payload capacity, improved acoustic superiority and non-acoustic signatures, and higher operational availability. SSN(X) will conduct full spectrum undersea warfare and be able to coordinate with a larger contingent of off-hull vehicles, sensors, and friendly forces. It will retain and improve multi-mission (Anti-submarine warfare (ASW), Anti-surface warfare (ASuW), Strike, Special Operating Forces (SOF), Mine, Subsea Seabed Warfare (SSW), Intelligence, Surveillance and Reconnaissance (ISR)) capability and sustained combat presence in denied waters. SSN(X) will operate independently or integrated within a Task Force. The primary goal of the SSN(X) program element will be to evaluate a broad range of submarine designs, technologies, sensors, and combat system components required to produce an affordable platform which supports these mission requirements.

SSN(X) will continue to define requirement options and refine cost estimates to support a 2040 authorization. As the SSN(X) program continued to ramped up, FY 2023 efforts focused on expanding trade studies and technology assessments; acquisition documentation development and support; engineering support efforts; ship design management efforts; and preliminary technology development informed by the ICD. FY 2024 expanded the efforts in the areas of trade studies, design engineering, prototyping and technology assessments and initial development. SSN(X) also increased focus on propulsor and shafting, advanced material development, prototyping, improved stealth and payload capacity, infrastructure evaluation and readiness, and industrial base evaluation and planning. The AoA will be initiated in FY 2024 and planned to be completed by FY2025. Additionally, SSN(X) focused on whole ship concepts, payload systems, non-propulsion Hull, Mechanical, and Electrical (HM&E) systems, Command, Control, Communications, Computers, and Intelligence (C4I), and hull and structures to better understand the best way to meet the warfighter priorities of increased horizontal payload capacity, increased speed, increased acoustic superiority and non-acoustic signatures, and increased operational availability. SSN(X) is utilizing digital engineering and industry and supply chain information to meet capability priorities while designing in availability and ensuring affordability.

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SSN(X) is using a mission engineering approach to ensure that mission utility drives the planned design, development, prototyping and testing. FY 2025 will focus on maintaining the efforts started in FY 2024 and completion of the AoA. SSN(X) will incorporate best practices and lessons learned from the Virginia Class and Columbia Class submarines. FY 2025 funding levels are required to execute planned efforts and support completion of the AoA.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	133.772	361.582	556.838	-	556.838
Current President's Budget	132.108	361.582	348.788	-	348.788
Total Adjustments	-1.664	0.000	-208.050	-	-208.050
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.664	0.000			
• Program Adjustments	0.000	0.000	-201.638	-	-201.638
• Rate/Misc Adjustments	0.000	0.000	-6.412	-	-6.412

Change Summary Explanation

FY23 Adjustment:

-\$1.664 decrease for SBIR

FY25 Adjustments:

-\$201.638M decrease for shift of lead ship authorization to 2040

-\$0.432M increase for inflation and rate adjustments

-\$6.112M decrease for CIVPERS, ROC, AOR reduction

-\$0.259M decrease for NAVWAR Unachievable SYSCOM Efficiency

-\$0.473M Navy Offset for Corporate

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604850N / SSN(X)				Project (Number/Name) 2368 / SSN(X) Class Submarine Development			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2368: SSN(X) Class Submarine Development	30.164	132.108	361.582	348.788	-	348.788	351.183	349.599	347.532	345.278	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

SSN(X) will be designed to counter the growing threat posed by near peer adversary competition for undersea supremacy. It will provide greater speed, increased horizontal payload capacity, improved acoustic superiority and non-acoustic signatures, and higher operational availability. SSN(X) will conduct full spectrum undersea warfare and be able to coordinate with a larger contingent of off-hull vehicles, sensors, and friendly forces. This project encompasses Navy RDT&E efforts required to design the next SSN to replace the VIRGINIA Class Submarine.

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

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: SSN(X) Class Submarine Development	132.108	361.582	348.788	0.000	348.788
Articles:	-	-	-	-	-
Description: N/A					
FY 2024 Plans:					
- Continue developing near term and long-term schedules and identifying resource requirements to support SSN(X)					
- Continue trade studies in support of Analysis of Alternatives (AoA)					
- Execute Analysis of Alternatives (AoA)					
- Expand technical and concept development studies as informed by the AoA to define the submarine platform design trade space so that requirements definition can be done based on whole-ship concept risks (cost, schedule, and performance)					
- Expand advanced technology initial development and assessments as informed by the AoA including requirements definition and overall program risks (technical, schedule, and costs) associated with technology maturity					
- Start implementation of SSN(X) model-based systems engineering process and digital design strategy					
- Continue modeling and simulation efforts to support design development and technology development					
- Initiate Ship Specification efforts					
- Continue development, prototyping, and testing of advanced materials					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)	Project (Number/Name) 2368 / SSN(X) Class Submarine Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<ul style="list-style-type: none"> - Expand initial technology development, prototyping, and testing efforts for propulsor and shafting to inform requirements definition and overall program risks (technical, schedule, and costs) associated with technology maturity - Initiate preliminary design efforts - Completion of Gate 1 and MDD - Continue acquisition documentation in preparation for Gate 2 and Milestone A - Conduct infrastructure and industrial base evaluation and planning to ensure activities are ready for SSN(X) - Begin infrastructure evaluation and maintenance <p>FY 2025 Base Plans:</p> <ul style="list-style-type: none"> - Continue developing near term and long term schedules and identifying resource requirements to support SSN(X) - Continue trade studies in support of Analysis of Alternatives (AoA) - Completion of the Analysis of Alternatives (AoA) - Continue technical and concept development studies as informed by the AoA to define the submarine platform design trade space so that requirements definition can be done based on whole-ship concept risks (cost, schedule, and performance) - Continue advanced technology initial development and assessments as informed by the AoA including requirements definition and overall program risks (technical, schedule, and costs) associated with technology maturity - Continue implementation of SSN(X) model based systems engineering process and digital design strategy - Continue modeling and simulation efforts to support design development and technology development - Continue Ship Specification efforts - Continue development, prototyping, and testing of advanced materials - Maintain technology development, prototyping, and testing efforts for propulsor and shafting to inform requirements definition and overall program risks (technical, schedule, and costs) associated with technology maturity - Continue preliminary design efforts - Continue acquisition documentation in preparation for Gate 2 and Milestone A - Conduct infrastructure and industrial base evaluation and planning to ensure activities are ready for SSN(X) - Continue infrastructure evaluation and maintenance <p>FY 2025 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
N/A					
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2024 decrease is due to shifting the lead ship authorization to 2040.					
Accomplishments/Planned Programs Subtotals	132.108	361.582	348.788	0.000	348.788

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy

SSN(X) is currently developing the acquisition strategy. Program office plans to utilize work requests for government warfare center initial concept and trade studies through FY 2025 to assist with requirements definition. Additional R&D efforts will be performed by Navy laboratories, shipyards, private industry, and University Affiliated Research Centers.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)	Project (Number/Name) 2368 / SSN(X) Class Submarine Development
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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			
Shipbuilder Studies	C/CPFF	Various : Various	4.000	26.000	Oct 2022	90.000	Oct 2023	90.000	Oct 2024	-		90.000	Continuing	Continuing	Continuing
Technical Studies	WR	NSWC CD : Carderock, MD	11.357	38.035	Oct 2022	83.147	Oct 2023	82.099	Oct 2024	-		82.099	Continuing	Continuing	Continuing
Technical Studies	WR	NUWC NPT : Newport, RI	6.036	24.632	Oct 2022	52.882	Oct 2023	53.782	Oct 2024	-		53.782	Continuing	Continuing	Continuing
Technical Studies	WR	NSWC PD : Philadelphia, PA	0.616	4.323	Oct 2022	10.755	Oct 2023	14.255	Oct 2024	-		14.255	Continuing	Continuing	Continuing
Technical Studies	Various	Various : Various	0.000	0.000		20.612	Nov 2023	17.460	Nov 2024	-		17.460	Continuing	Continuing	Continuing
Concept / R&D Studies (UARCs)	Various	Various : Various	0.250	7.733	Nov 2022	33.662	Nov 2023	25.662	Nov 2024	-		25.662	Continuing	Continuing	Continuing
Propulsor and Shafting	Various	Various : Various	0.000	13.010	Oct 2022	31.249	Oct 2023	31.849	Oct 2024	-		31.849	Continuing	Continuing	Continuing
Acquisition Documentation	Various	Various : Various	1.996	2.508	Oct 2022	5.708	Oct 2023	3.848	Oct 2024	-		3.848	Continuing	Continuing	Continuing
Subtotal			24.255	116.241		328.015		318.955		-		318.955	Continuing	Continuing	N/A

Remarks

Acquisition Documentation includes the ICD, pre-AoA studies, AoA development and milestone and gate preparation.

Technical Studies efforts include technical development, R&D development, system development, concept development, modeling and simulation, mission evaluation, technology AoA studies, and trade/feasibility studies. Studies also include current and future research and development facilities and equipment, implementation of required upgrades, and investment in future capabilities or facilities upgrades/modernization to ensure readiness to support the expanded capabilities of SSN(X) are also captured.

Technical Studies: Various - Includes other government activities and non-shipbuilder contractors.

Concept / R&D Studies: Various - Includes UARC and Federally Funded R&D Centers (FFRDC) studies.

Funding is needed for concept and technical studies, modeling and simulation efforts to support AoA execution and requirement decisions, R&D development, and capabilities/ requirement definition. Funds also supported propulsor prototyping, testing efforts (including propulsor and materials), improved stealth and payload capacity, and research and development infrastructure studies and upgrades to ensure readiness for planned award in 2040.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)	Project (Number/Name) 2368 / SSN(X) Class Submarine Development
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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 Engineering Support	WR	NSWC CD : Carderock, MD	2.865	6.725	Oct 2022	8.426	Oct 2023	8.595	Oct 2024	-		8.595	Continuing	Continuing	Continuing
Government Engineering Support	WR	NUWC NPT : Newport, RI	0.680	2.570	Oct 2022	3.749	Oct 2023	3.824	Oct 2024	-		3.824	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC PD : Philadelphia, PA	0.150	0.575	Oct 2022	2.079	Oct 2023	2.036	Oct 2024	-		2.036	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPFF	Various : Various	0.515	2.223	Dec 2022	6.784	Dec 2023	6.566	Dec 2024	-		6.566	Continuing	Continuing	Continuing
Subtotal			4.210	12.093		21.038		21.021		-		21.021	Continuing	Continuing	N/A

Remarks
Engineering Support includes technical, concept, cost, digital, and R&D support for SSN(X) studies and development efforts. To support the FY 2025 and beyond deliverables, staff support ensures completion of milestone deliverables on time.

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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			
Program Management Support	C/CPFF	Various : Various	0.874	0.000		0.000		0.000		-		0.000	0.000	0.874	-
Program Support	C/CPFF	Serco : Herndon, VA	0.600	2.499	Dec 2022	7.401	Dec 2023	4.842	Dec 2024	-		4.842	Continuing	Continuing	Continuing
Program Mgt Support	Various	Various : Various	0.225	1.275	Nov 2022	5.128	Nov 2023	3.970	Nov 2024	-		3.970	Continuing	Continuing	Continuing
Subtotal			1.699	3.774		12.529		8.812		-		8.812	Continuing	Continuing	N/A

Remarks
Program Management Support includes Program Office, subject matter experts (SME), cyber, cost, financial, and acquisition support. To support the FY 2025 and beyond deliverables, staff support ensures completion of milestone deliverables on time.

Program Support includes program office travel and office costs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy								Date: March 2024			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604850N / SSN(X)				Project (Number/Name) 2368 / SSN(X) Class Submarine Development			
	Prior Years	FY 2023		FY 2024		FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.164	132.108		361.582		348.788	-	348.788	Continuing	Continuing	N/A

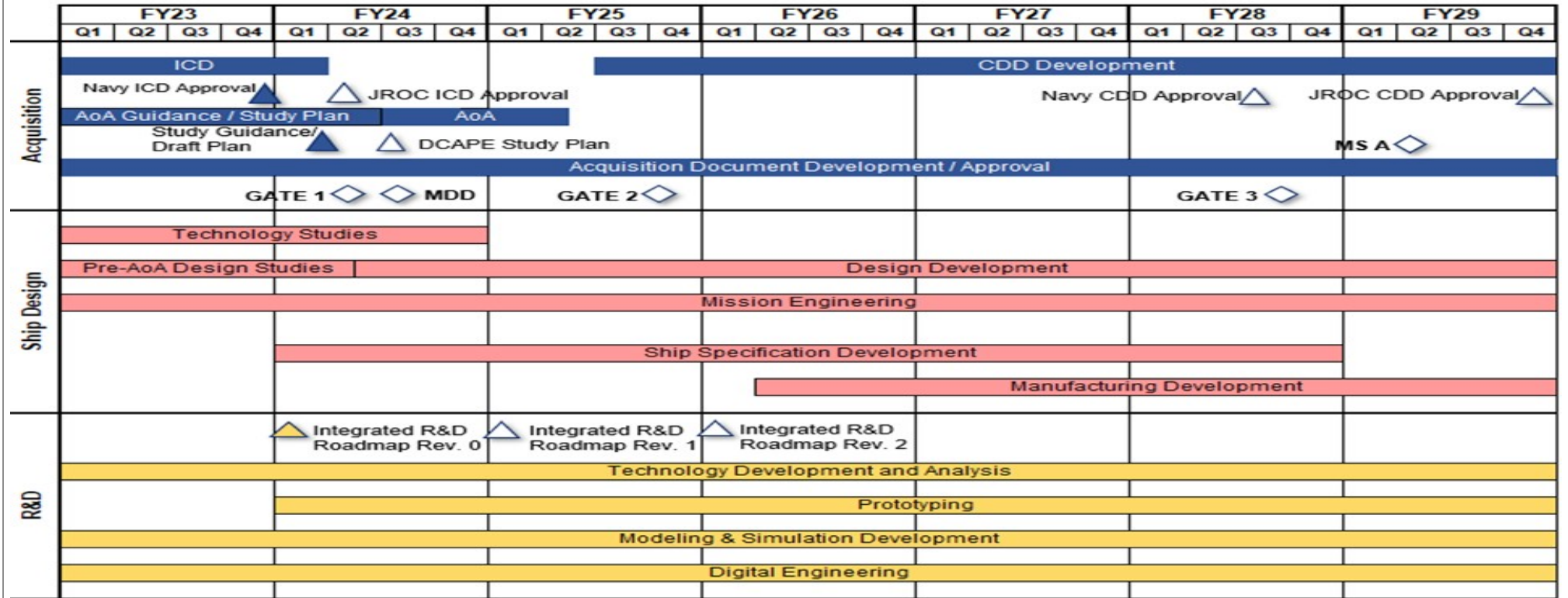
Remarks

The PB 2025 budget reflects the shift of lead ship authorization from the mid-2030's (as submitted in PB24) to 2040 due to budget limitations. The FY2025 funding level supports 2040 lead-ship authorization. Near term continued funding is required to: continue concept, technology, and effectiveness studies to inform requirements development and to manage program risk; continue prototyping for long-lead technology (including propulsor and launchers), testing (including propulsor, launchers, and materials) and R&D infrastructure upgrades to ensure readiness for planned authorization in 2040. The requested funding levels are necessary to ensure design and technology maturity and infrastructure readiness at construction start while maintaining the design industrial base at needed/sustaining levels.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)	Project (Number/Name) 2368 / SSN(X) Class Submarine Development

SSN(X) Class Program Schedule



ACRONYMS:

CBA: Capabilities Based Assessment
 ICD: Initial Capabilities Document
 CDD: Capabilities Development Document

DAB: Defense Acquisition Board
 AoA: Analysis of Alternatives
 R&D: Research & Development

JROC: Joint Requirement Oversight Council
 MS: Milestone

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)	Project (Number/Name) 2368 / SSN(X) Class Submarine Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2368				
Acquisition: Initial Capabilities Document (ICD)	1	2023	2	2024
Acquisition: Navy ICD Approval	4	2023	4	2023
Acquisition: JROC ICD Approval	2	2024	2	2024
Acquisition: AoA Guidance / Study Plan	1	2023	2	2024
Acquisition: AoA	2	2024	2	2025
Acquisition: Study Guidance / Draft Plan	2	2024	2	2024
Acquisition: Gate 1	2	2024	2	2024
Acquisition: MDD	3	2024	3	2024
Acquisition: Gate 2	4	2025	4	2025
Acquisition: Gate 3	3	2028	3	2028
Acquisition: DCAPE Study Plan Approval	3	2024	3	2024
Acquisition: Milestone (MS) A	2	2029	2	2029
Acquisition: Navy CDD Approval	3	2028	3	2028
Acquisition: JROC CDD Approval	4	2029	4	2029
Acquisition: CDD Development	2	2025	4	2029
Acquisition: Acquisition Document Development / Approval	1	2023	4	2029
Ship Design: Technology Studies	1	2023	4	2024
Ship Design: Pre-AoA Design Studies	1	2023	2	2024
Ship Design: Mission Engineering	1	2023	4	2029
Ship Design: Design Development	3	2024	4	2029
Ship Design: Manufacturing Development	2	2026	4	2029

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604850N / SSN(X)	Project (Number/Name) 2368 / SSN(X) <i>Class Submarine Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Ship Design: Ship Specification Development	1	2024	4	2028
R&D: Technology Development and Analysis	1	2023	4	2029
R&D: Prototyping	1	2024	4	2029
R&D: Digital Engineering	1	2023	4	2029
R&D: Integrated R&D Roadmap Rev 0	1	2024	1	2024
R&D: Integrated R&D Roadmap Rev 1	1	2025	1	2025
R&D: Integrated R&D Roadmap Rev 2	1	2026	1	2026
R&D: Modeling & Simulation	1	2023	4	2029