Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy												Date: March 2024
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101221N *I Strategic Sub & Wpns Sys Supt*							
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	1,775.843	304.000	321.648	403.494	-	403.494	538.465	657.244	1,086.996	1,109.825	Continuing	Continuing
0951: *Joint Warhead Fuze Sustainment Program*	717.379	3.140	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	720.519
2021: *Mk4B Shape Stable Nose Tip*	72.920	7.471	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	80.391
2228: *Technical Applications Programs*	785.691	168.098	192.003	113.187	-	113.187	115.123	116.915	119.257	121.762	Continuing	Continuing
3097: *W-93 / Mk 7*	148.997	94.959	126.466	287.128	-	287.128	420.102	537.032	964.375	984.628	Continuing	Continuing
3158: *Integrated Nuclear Weapons Security Sys Dev*	19.000	3.307	3.179	3.179	-	3.179	3.240	3.297	3.364	3.435	Continuing	Continuing
9999: *Congressional Adds*	31.856	27.025	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	58.881
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 178												

A. Mission Description and Budget Item Justification

The Strategic Submarine & Weapon Systems Support program element directly supports the Navy's deterrence mission, specifically the Submarine Launched Ballistic Missile (SLBM). The SLBM, accounting for approximately 70 percent of the deployable nuclear inventory, is the most survivable leg of the triad and foundational to the nation's deterrence strategy. Nuclear deterrence underwrites every U.S. military operation and capability on the globe and serves as the backstop for both our national defense and the defense of our allies. The nation's nuclear triad serves as the bedrock of our ability to deter aggression, assure our allies and partners, achieve U.S. objectives should deterrence fail, and hedge against an uncertain future. This program element focuses on the modernization of the nuclear deterrent, and its role as trusted steward of the safety and security of these weapons.

Major projects in the Strategic Submarine & Weapon Systems Support program include: 1) Joint Warhead Fuze Sustainment Program (final year of development is FY 2023); 2) Mk4B Shape Stable Nose Tip (final year of development is FY 2023); 3) Technical Applications Programs; 4) W93/Mk7 Reentry Program; and 5) Integrated Nuclear Weapons Security System Development.

The Joint Warhead Fuze Sustainment Program (0951) was an effort to develop advanced components to improve the reliability, safety, and security of Arming, Fuzing, and Firing (AF&F) systems for nuclear reentry systems. This effort was focused on supporting the alteration of the AF&F system for the W88/MK5 system which will be five years beyond its design life at the scheduled deployment of the AF&F alteration. This effort also supports future utilization of the developed components by the US Air Force and United Kingdom. This project's final year of development is FY 2023.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy	Date: March 2024
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101221N *I Strategic Sub & Wpns Sys Supt*

The Mk4B (formerly referred to as Mk4A) Shape Stable Nose Tip (SSNT) (2021) effort converted reentry body (RB) forward shell assemblies (FSAs) from legacy carbon composite nose tips to SSNTs. This required ground and flight testing of SSNT Reentry Body Assemblies, updates and modifications to RB documentation (Weapon Specifications, Interface Control Drawings, product drawings, etc.), updated Fire Control software for fleet implementation, conversion of war reserve RBs to FSAs with SSNT, procurement/conversion of surveillance and flight test units, Strategic Weapons Facility (SWF) logistics implementation planning and execution, review and update Mk4B surveillance planning and the DoD share of National Nuclear Security Administration (NNSA) Office of Secure Transportation (OST) for shipping. This project's final year of development is FY 2023.

The Technology Applications Program (2228) consists of two elements: D5 Life Extension 2 (D5LE2) and Systems Engineering Modeling and Simulation.

The TRIDENT II modernization, D5 Life Extension 2 (D5LE2), modernizes and replaces the current TRIDENT II D5 Life Extension (D5LE) Strategic Weapons System (SWS). D5LE supports all OHIO Class submarines. At least 12 COLUMBIA Class SSBNs will replace today's 14 OHIO SSBNs beginning in FY 2030, D5LE will also support initial missile load-outs on COLUMBIA through the 8th SSBN. Safety critical D5LE missile electronics begin to exceed their qualification period by FY 2039. Several D5LE components are obsolete, out of production, and no longer supported by industry. D5LE2 is required to replace D5LE to support COLUMBIA Class missile inventory requirements starting in FY 2039. While the D5LE program extended the lifetime of some missile components, D5LE2 will leverage technologies for both the missile and shipboard systems ensuring adaptability and survivability of the weapons system out to the 2080s. The D5LE2 program is a hybrid of pull-through cost-effective technology (e.g., solid rocket motors, ignitors) and redesign candidates (e.g., avionics, guidance, system architecture).

The Systems Engineering Modeling and Simulation capability will consist of three elements: Model Based Design, SWS Integrated Modeling and Simulation/Common Architecture & Framework, and SWS Enhancement Ground Test. This effort will provide the capability to comprehensively evaluate and test the integrated SWS within representative operational environments, providing unprecedented visibility across the SWS and system performance characterization equivalent to flight testing. This capability will enable trade space analysis to identify technical margin, subsystem interactions, and lifecycle affordability opportunities to include other services and be able to identify the benefits and risks of commonality to the individual programs, requirements and CONOPs modifications that could facilitate commonality, potential common acquisition strategies between the services, and total life cycle cost implications. This project's final year of development is FY 2023.

The W93/Mk7 warhead project (3097), formerly known as the Interoperable Warhead (IW), will design, develop, and test a future Navy warhead to include a new Navy Aeroshell for a SLBM. Early FYDP efforts will primarily consist of developing programmatic planning and structure to support the continuing study and future program along with further exploration and refinement of the concept studies that resulted from the FY 2019 Navy Feasibility Study.

The Integrated Nuclear Weapons Security System (INWSS) (3158) efforts support the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay, or Naval Submarine Base, Bangor where missiles are assembled/disassembled, tested as well as repaired. This project supports efforts directed at improving the current technological baseline through a series of studies. These efforts aim to improve countermeasure technologies to address detection, delay and denial.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy	Date: March 2024
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101221N *I Strategic Sub & Wpns Sys Supt*

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	312.502	321.648	324.458	-	324.458
Current President's Budget	304.000	321.648	403.494	-	403.494
Total Adjustments	-8.502	0.000	79.036	-	79.036
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-8.502	0.000			
• Program Adjustments	0.000	0.000	79.030	-	79.030
• Rate/Misc Adjustments	0.000	0.000	0.006	-	0.006

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: 9999: *Congressional Adds*		
Congressional Add: *Next Generation Strategic Inertial Measurement Unit*	9.654	0.000
Congressional Add: *Multimodal biometric authentication*	7.717	0.000
Congressional Add: *Navigation modernization capabilities*	9.654	0.000
Congressional Add Subtotals for Project: 9999	27.025	0.000
Congressional Add Totals for all Projects	27.025	0.000

Change Summary Explanation

The change from Previous President's Budget for FY 2025 supports an increase for W93/Mk 7.

The increase in funding from FY 2024 to FY 2025 is due to the growth in the W93/Mk7 (3097) project. W93/Mk7 Program's increase is attributed to the increased activities throughout Phase 2 (Feasibility Study and Design Options) and personnel ramping to support schedule, cost, design and development planning to meet defined First Production Unit (FPU) date.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 0951 / *Joint Warhead Fuze Sustainment Program*	

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
0951: *Joint Warhead Fuze Sustainment Program*	717.379	3.140	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	720.519
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 178

A. Mission Description and Budget Item Justification

The Joint Warhead Fuze Sustainment Program is an effort to develop advanced components to improve the reliability, safety, and security of AF&F systems for nuclear reentry systems. The current effort is focused on supporting the alteration of the AF&F system for the W88/MK5 system which will be five years beyond its design life at the scheduled deployment of the AF&F alteration. This effort also supports future utilization of the developed components by the U.S. Air Force and United Kingdom. FY 2023 will be the last year of development for the Joint Warhead Fuze Sustainment Program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: TRIDENT II	3.140	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Identify, prioritize, develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs.					
FY 2024 Plans: N/A					
FY 2025 Base Plans: N/A					
FY 2025 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	3.140	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• RDTEN/3219: *SBSD Nuclear Technology Development*	56.707	54.400	44.385	-	44.385	39.173	35.834	36.222	0.000	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*	

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• RDTEN/3220: *COLUMBIA Class Submarine Development*	268.996	185.739	121.400	-	121.400	121.994	107.882	134.707	0.000	Continuing	Continuing
• OPN/5358: *Strategic Missile Systems Equip*	279.430	325.318	321.406	-	321.406	435.968	325.448	447.515	0.000	Continuing	Continuing
• WPN/1250: *TRIDENT II Mods*	1,125.164	1,284.705	1,705.878	-	1,705.878	2,468.925	2,897.274	3,186.112	0.000	4,352.768	30,073.252
• SCN/1045: *COLUMBIA Class Submarine*	5,857.776	5,834.332	7,275.820	-	7,275.820	8,467.564	8,788.208	8,728.802	0.000	52,170.081	112,651.052
• OMN/1D2D: *Fleet Ballistic Missile*	1,664.933	1,763.238	1,861.325	-	1,861.325	1,890.125	1,934.921	1,983.564	0.000	0.000	12,572.111

Remarks

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the Mk4LE Reentry Body development program and are currently engaged in the production and/or operational support of the deployed Mk4LE Reentry Body on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Warhead Fuze Sustainment DOE	MIPR	DOE : NM	576.501	0.200	Dec 2022	0.000		0.000		-		0.000	0.000	576.701	-
Joint Warhead Fuze Sustainment ITT	SS/CPFF	ITT : VA	27.023	0.000		0.000		0.000		-		0.000	0.000	27.023	-
Joint Warhead Fuze Sustainment LMMS	SS/CPFF	LMMS : CA	79.327	0.000		0.000		0.000		-		0.000	0.000	79.327	-
Joint Warhead Fuze Sustainment	WR	NSWC Dahlgren : VA	20.639	0.000		0.000		0.000		-		0.000	0.000	20.639	-
Joint Warhead Fuze Sustainment	SS/CPFF	BAE : MD	1.889	0.000		0.000		0.000		-		0.000	0.000	1.889	-
Joint Warhead Fuze Sustainment	SS/CPIF	APL : MD	1.052	0.000		0.000		0.000		-		0.000	0.000	1.052	-
Joint Warhead Fuze Sustainment	WR	CNSW : IN	2.959	0.000		0.000		0.000		-		0.000	0.000	2.959	-
Joint Warhead Fuze Sustainment	C/BA	PERATON : VA	5.058	0.000		0.000		0.000		-		0.000	0.000	5.058	-
Joint Warhead Fuze Sustainment	C/BA	TOYON : VA	2.931	2.053	Feb 2023	0.000		0.000		-		0.000	0.000	4.984	-
Joint Warhead Fuze Sustainment	C/CPFF	L3 Harris : CA	0.000	0.887	Feb 2023	0.000		0.000		-		0.000	0.000	0.887	-
		Subtotal	717.379	3.140		0.000		0.000		-		0.000	0.000	720.519	N/A

	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	717.379	3.140		0.000		0.000		-		0.000	0.000	720.519	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

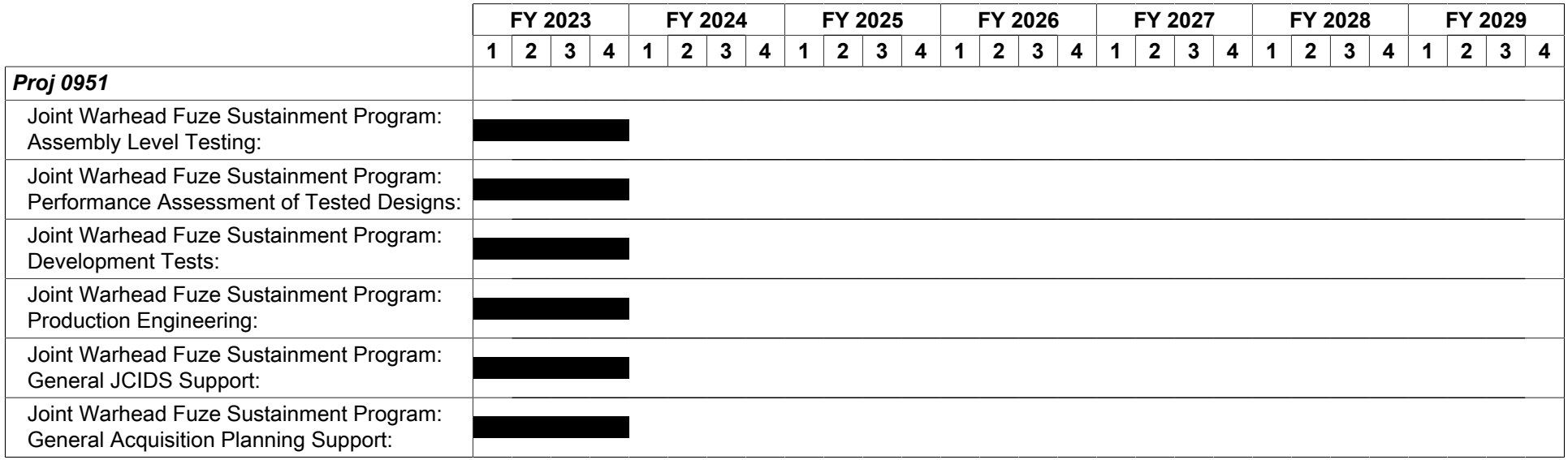

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0951				
Joint Warhead Fuze Sustainment Program: Assembly Level Testing:	1	2023	4	2023
Joint Warhead Fuze Sustainment Program: Performance Assessment of Tested Designs:	1	2023	4	2023
Joint Warhead Fuze Sustainment Program: Development Tests:	1	2023	4	2023
Joint Warhead Fuze Sustainment Program: Production Engineering:	1	2023	4	2023
Joint Warhead Fuze Sustainment Program: General JCIDS Support:	1	2023	4	2023
Joint Warhead Fuze Sustainment Program: General Acquisition Planning Support:	1	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2021 / *Mk4B Shape Stable Nose Tip*	

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
2021: *Mk4B Shape Stable Nose Tip*	72.920	7.471	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	80.391
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mk4B (formerly referred to as Mk4A) Shape Stable Nose Tip (SSNT) effort will convert reentry body (RB) forward shell assemblies (FSAs) from legacy carbon composite nose tips to SSNTs. This will require ground and flight testing of SSNT RBs, updates and modifications to RB documentation (Weapon Specifications, Interface Control Drawings, product drawings, etc), updated Fire Control software for fleet implementation, conversion of war reserve RBs to FSAs with SSNT, procurement/conversion of surveillance and flight test units, Strategic Weapons Facility (SWF) logistics implementation planning and execution, and review and updates to both the Mk4B surveillance planning and the DoD share of National Nuclear Security Administration (NNSA) Office of Secure Transportation (OST) for shipping. FY 2023 will be the last year of development for the Mk4B program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Mk4B Shape Stable Nose Tip	7.471	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2024 Plans: N/A					
FY 2025 Base Plans: N/A					
FY 2025 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	7.471	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• WPN/1250: *Trident II Mods*	1,125.164	1,284.705	1,705.878	-	1,705.878	2,468.925	2,897.274	3,186.112	0.000	4,352.768	30,073.252

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the Mk4LE Reentry Body development program and are currently engaged in the production and/or operational support of the deployed Mk4LE Reentry Body on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SSNT LMSS	SS/CPIF	LMSSC : CA	44.691	3.378	Jan 2023	0.000		0.000		-		0.000	0.000	48.069	-
SSNT DOE/NNSA	MIPR	DOE/NNSA : NM	19.285	3.943	Jan 2023	0.000		0.000		-		0.000	0.000	23.228	-
SSNT JHU-APL	SS/CPFF	APL : MD	3.808	0.000		0.000		0.000		-		0.000	0.000	3.808	-
SSNT PERATON	SS/CPFF	PERATON : VA	1.558	0.000		0.000		0.000		-		0.000	0.000	1.558	-
SSNT NSWC	WR	NSWC : VA	1.686	0.000		0.000		0.000		-		0.000	0.000	1.686	-
SSNT Toyon	SS/CPFF	TOYON : CA	1.042	0.000		0.000		0.000		-		0.000	0.000	1.042	-
SSNT SPA	SS/CPFF	SPA : VA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
SSNT Draper	SS/CPFF	Draper : MA	0.350	0.150	Feb 2023	0.000		0.000		-		0.000	0.000	0.500	-
		Subtotal	72.920	7.471		0.000		0.000		-		0.000	0.000	80.391	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	72.920	7.471		0.000		0.000		-		0.000	0.000	80.391	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 2021																												
Mk4B Shape Stable Nose Tip: General Acquisition Planning Support:	[redacted]																											
Mk4B Shape Stable Nose Tip: Production Engineering:	[redacted]																											

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2021				
Mk4B Shape Stable Nose Tip: General Acquisition Planning Support:	1	2023	4	2023
Mk4B Shape Stable Nose Tip: Production Engineering:	1	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy											Date: March 2024	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*				Project (Number/Name) 2228 / *Technical Applications Programs*			
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**
2228: *Technical Applications Programs*	785.691	168.098	192.003	113.187	-	113.187	115.123	116.915	119.257	121.762	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 2228 consists of D5 Life Extension 2 (D5LE2) and Systems Engineering Modeling and Simulation, which completed in FY2023.

Trident II D5 Modernization (D5LE2):
The Submarine Launched Ballistic Missile (SLBM) is the most survivable leg of the triad and foundational to the nation's deterrence strategy. The heart of the SLBM capability is the D5LE Strategic Weapon System (SWS) currently hosted aboard the OHIO platform throughout its remaining service life. D5LE is planned to be the initial SWS on the COLUMBIA platform but cannot support the platform throughout its predicted service life (through 2084) due to age, attrition, and obsolescence of critical components within the system. Aging components (such as flight electronics and guidance) fall below requirements as early as the late 2030s and non-aging components are reduced by flight tests and spares consumption and fall below requirements shortly thereafter. As the D5LE missile inventory cannot be extended further, the D5LE SWS will require a significant modernization - D5LE2 - which is required to provide the missile inventory for the COLUMBIA SLBM.

The nation's Strategic Systems must be more adaptable and resilient in the face of two peer adversaries who are increasingly showing the ability to quickly, deploy offensive and defensive capabilities that threaten the effectiveness of the existing strategic deterrent. SSP plans to design the D5LE2 SWS with this adaptability and resiliency to meet established STRATCOM requirements for the life of the COLUMBIA Class. The D5LE2 strategic weapon system modernization will address the COLUMBIA Class service life requirement by delivering the range and accuracy of the current system and address the threat peer adversaries' improving capabilities by providing a credible, adaptable and survivable strategic deterrent.

D5LE2 is a modernization of the D5LE SWS. SSP is required make significant changes within the SWS Architecture, Avionics, Guidance Instrumentation, Flight Structures and Post Boost Controls to address program obsolescence and requirements. Other major components within the SWS such as large rockets motors and existing energetics will be pull thru due to the existence of a viable supplier base coupled with adequate technical performance for the future. Since D5LE2 is a modernization requirement, it has been determined to be a subprogram to the original Trident II D5 program with the Assistant Secretary of the Navy, for Research Development & Acquisition (ASN RDA) continuing as the Milestone Decision Authority (MDA). Greater details of the acquisition strategy are covered in section D of this document including SSP's recent initiative to rename the previously defined SWS design milestones. To clarify the definition of design Milestones on top level schedules, SSP has renamed the previously defined SWS design milestones (System Requirements Review (SRR), Preliminary Design Review (PDR) and Critical Design Review (CDR)) to Subsystem Redesign Sufficiency Assessment (SRSA-1, SRSA-2 and SRSA-3) with the exact same technical content as the previously defined reviews. Efforts covered within this exhibit will address modernization of the SWS Architecture and critical technology development in the areas of Strategic Radiation Hardened Electronic parts for Flight Avionics, Strategic grade Guidance Instrumentation, Post Boost Control and Structures due to the low Technology Readiness Level (TRL) and

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
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Manufacturing Readiness Level (MRL) in industry. A successful D5LE2 vision requires SSP to incorporate a modular architecture that will enable Trident II to unlock the capabilities of modern and future technologies.

D5LE2's schedule is directly analogous to the previous life extension's (D5LE) executed schedule which began concept studies in the late 1990s, began design in 2004, completed design in 2011, and deployed in 2017. D5LE2 encompasses significantly more scope than D5LE on a similar timeline. Funding is required in the pre-SPALT (Strategic Systems Programs Alterations) development phase of the program to mature enabling technologies for D5LE2 in anticipation of long lead material procurements starting in 2030; therefore, significant technology investments must be continued in 2024 to support execution of the program of record. To ensure that key technologies have reached appropriate maturation and been tested in a relevant environment prior to the SRSA-2 (formerly PDR) in FY 2028, funding to improve TRL and MRL by commodity is phased according to complexity and need.

D5LE2 is focused on maturation of critical technologies required to modernize the Navy's SWS. The technology investments are architecture agnostic (i.e. they must be developed regardless of the design of the architecture) and represent the fundamental building blocks for the SWS. The ability to rapidly mature these technologies represents the single greatest risk mitigation to the program. D5LE2 strategic modernization efforts will focus on critical technologies such as:

- Post Boost Control System (PBCS) Technologies utilizing high refractory metal
- Next Generation Low - Size Weight and Power (SWaP) Guidance Inertial Instruments and Components
- Strategic Radiation Hardened Electronics
- Modernized Structural Components (e.g. Nose Fairing and Equipment Section)

D5LE2 Technology Development targets replacements for legacy D5 and D5LE technologies now obsolete with manufacturing lines shutdown that are required regardless of architecture chosen (e.g. radiation hardened parts) and/or have long lead maturity and development timelines. Technology advancements and improved system architecture concepts will unlock existing system capability, and add adaptability, manufacturability, SWS operations, and sustainability - while at the same time reconstituting an industrial base that has not performed SLBM development for decades.

In order to support STRATCOM requirements without gapping capability, in FY 2020 D5LE2 began critical architecture agnostic technology maturation efforts on key strategic technologies and studies to explore potential modern System Level Architectures. FY 2020 efforts have focused on filling requirements voids in the areas of threat effectiveness, cyber vulnerabilities, evaluating the SWS contribution to platform survivability, developing the military utility curves by which concepts will be evaluated and limited technology development on certain key technologies. Efforts also focused on limited technology development on certain key technologies. FY 2021 concluded with preliminary architecture concepts that enabled key architecture decisions in FY 2022, followed by performance allocations to requirements in FY 2023. The program also funded efforts for advanced technology development and maturation of critical SWS D5LE2 components in the areas of high refractory metal PBCS Valve Assemblies, alternative batteries, nuclear safe out-of-line blocking elements, large Missile Structures, and RADHARD parts & shielding. Additionally, efforts funded included Strategic Guidance activities to include the development of technologies and components for strategic sensors to support the next generation of inertial sensors, instruments, rotary components and high performance processing electronics to address the need for advanced sensor data processing and low SWaP modular solutions.

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FY 2023 plans continued critical D5LE2 efforts in the area of Systems Studies for Performance Allocations, Requirements and Architecture, SLBM technology investment and maturation efforts and Strategic Guidance efforts - all of which are based on historical timelines and execution for developing new technologies in this challenging environment to support the proposed D5LE2 and COLUMBIA class schedules.
FY 2023 System Studies and Architecture Development efforts included continuing and completing prior year studies and architecture decisions.
FY 2023 SLBM technologies concentrated on development of a Strategic Common Parts Database Common Parts ID, Radiation Hardened Parts Testing start, Part characterization, Battery Small Scale Tests, Data Bus CONOPS and development, Additive Manufacturing Surveys, PBCS Thruster Valve cold gas tests, and Nose Fairing Element level tests.
FY 2023 Strategic Guidance efforts included Algorithm simulation, fabrication and prototyping of viable candidates.

FY 2024 plans continue critical D5LE2 efforts in the area of Systems Studies for Performance Allocations, Requirements and Architecture, and SLBM technology investment and maturation efforts and Strategic Guidance efforts.
-FY 2024 SLBM technology investment areas will continue the maturation of the Common Parts Database, Flight System Batteries, Development of Radiation Hardened Test Capability, Maturation of a Nuclear Safe Data Bus, continued evaluation of Additive Manufacturing for high reliability space applications, continued maturation of Post Boost Control System (PBCS), Nose Faring, and Equipment Section Designs.

-FY 2024 Strategic Guidance efforts encompass Radiation Hardened Parts Concepts Evaluation to include candidate vendor allocations and technology down select fabrication, accelerometers, gyroscopes, stellar components, high fidelity lab/simulation testing, and mechanical packaging studies, Low Space Weight and Power solid state inertial sensor prototyping, Advanced imaging technology prototyping, Inertial Measurement Unit electro-mechanical component prototyping, Prototype Avionics developmental testing, Guidance Navigation and Control Software and Algorithm Studies, and Inertial Measurement Unit single axis testing and evaluation.

-FY 2024 System Level Studies and Architecture Development efforts culminate in an iterative update to the D5LE2 concept baseline to conduct a System Studies Concept Review (SCR), generating a sufficiently refined system architecture and requirements to support a System Readiness Review (SRR) in FY 2025. The FY 2025 SRR supports developing modernized commodities, requalifying pull-through commodities, iterative model maturation, integration, and ground testing with the first flight test in FY 2033. Completion of first flight test will lead to early production to support the loadout of an entire boat with qualified missiles in FY 2039.

-FY 2025 System Level Studies and Architecture Development efforts culminate in the SRR, now renamed Subsystem Redesign Sufficiency Assessment (SRSA-1) in FY 2025. FY 2025 System efforts will include preparations, conduct, and closeout of SRSA-1. Preparations include final deliveries of the data products to be baselined at SRSA-1, to include requirements specifications, descriptive system model, system architectures, technical management processes and plans, integration plans, verification and validation plans, cybersecurity plans, system surety plans, program protection plans, lifecycle management plans, and executability statements.

-The FY 2025 SRSA-1 supports developing modernized commodities, requalifying pull-through commodities, iterative model maturation, integration, and ground testing with the first flight test in FY 2033. Completion of first flight test will lead to an Low Rate Initial Production (LRIP) decision is FY 2034 to support the loadout of an entire boat with qualified missiles in FY 2039.

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-FY 2025 SLBM technology investment areas will continue the maturation of the Common Parts Database with parts characterization testing of prototype parts, Continue Development of Radiation Hardened Test Capability, Maturation of a Nuclear Safe Data Bus with testing, continued evaluation of Additive Manufacturing for high reliability applications, continued maturation of Post Boost Control System (PBCS) technologies with hot gas testing, Nose Faring Material Evaluations and Equipment Section large scale testing.

-FY 2025 Strategic Guidance efforts encompass Radiation Hardened Parts Concepts Evaluation to include candidate vendor allocations and technology down select fabrication, accelerometers, gyroscopes, stellar components, high fidelity lab/simulation testing, and mechanical packaging studies, Low Space Weight and Power solid state inertial sensor
prototyping, Advanced imaging technology prototyping, Inertial Measurement Unit electro-mechanical component prototyping, Prototype Avionics developmental testing, Guidance Navigation and Control Software and Algorithm Studies, and Inertial Measurement Unit single axis testing and evaluation. Targeting achieving TRL4 for key critical components.

Systems Engineering Modeling and Simulation:

FY 2023 was the final year of development for the Systems Engineering Modeling and Simulation effort. The Systems Engineering Modeling and Simulation capability consisted of three elements: Model Based Design, SWS Integrated Modeling and Simulation/Common Architecture & Framework, and SWS Enhancement Ground Test. This effort provided the capability to comprehensively evaluate and test the integrated SWS within representative operational environments, providing unprecedented visibility across the SWS and system performance characterization equivalent to flight testing. This capability enabled trade space analysis to identify technical margin, subsystem interactions, and lifecycle affordability opportunities to include other services and to identify the benefits and risks of commonality to the individual programs, requirements and CONOPs modifications that could facilitate commonality, potential common acquisition strategies between the services, and total life cycle cost implications.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: D5LE2	152.424	192.003	113.187	0.000	113.187
Articles:	-	-	-	-	-
FY 2024 Plans: System Studies: FY 2024 System level studies will define the system concept and system architecture and culminate with a System Concept Review. Following the review, updates to the system functional baseline will be made leading to the System Requirements Review (SRR) in FY 2025. Several data products will be developed and baseline in FY 2024 in support of the SRR. The Allocated System Requirements Specification (ASRS) Revision that formally					

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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
establishes subsystem allocated requirements will be delivered. Subsystem Interfaces and interface constraints will be captured in the system descriptive model. Performance (Accuracy and Reliability) requirements will be allocated and baselined. Continued, Expanded, and Baselined for SRR: - Lifecycle concepts - Cyber Response Concept Development - Missile Handling and Recertification - Performance Allocations - Reliability Allocation - Reconfiguration Time - Allocated capability requirements - Allocated performance requirements - System Navigation Solution - Inter-subsystem data requirements - Allocated environments specification - Identification of induced survivability environments - Allocated safety and surety architecture and design guidelines - Reconfiguration time performance allocations - Accuracy Allocations to subsystems - Electronics and Guidance interfaces - Flexible payload interfaces Technology Investments: FY 2024 technology investments efforts continue and include a significant increase in the scope of both the expanded and initiated major missile and guidance technologies to inform potential down selection and prototyping of scale design concepts. Continued and Expanded: - Radiation Hardened Parts Solid State Switch (RHSSS) for safety/surety testing - Radiation Hardened by Design (RHBD) test boards fabrication - Additive Manufacturing Shielding design rules and sample material analysis - PBCS Technologies Thruster valve cold gas testing and analysis following cold gas hardware fabrication					

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
- PBCS Technologies Thruster Valve performance models and hot gas demonstration - Batteries large scale design, fabrication and testing to create and evaluate a large scale battery of approximate form/fit/function - Nose Fairing component level trade studies to include tooling and processing strategies to refine component models with structural details and configurations and material characterization - Equipment Section materials element level tests of advanced materials to refine material model performance, thermal, stress/structural analysis, and material characterization - Common Parts, Materials, and Processes (PMP) initial lab testing and electrical performance evaluation, along with environmental testing and a manufacturability and cost assessment - Missile Common Parts database and Common PMP Trades Model Based Engineering (MBE) models for selected components - Down selection of Data Bus selected technologies from suppliers and Data Bus vendor design - Linear Accelerator (LINAC) Critical Design Review (CDR) and fabrication start - Radiation Hardened Parts Concepts Evaluation to include candidate vendor allocations and technology down select fabrication - Guidance Concepts and Sensors including accelerometers, gyroscopes, stellar components, high fidelity lab/ simulation testing, and mechanical packaging studies - Guidance accelerometer and gyroscope lab characterization testing and critical component testing - Low Space Weight and Power solid state inertial sensor prototyping - Advanced imaging technology prototyping - Inertial Measurement Unit electro-mechanical component prototyping Initiated: - Prototype Avionics developmental testing of Hardware in the Loop environment - Guidance Navigation and Control Software and Algorithm Studies - Inertial Measurement Unit single axis testing and evaluation ***FY 2025 Base Plans:*** System Studies: The SRSA-1 will be held in FY 2025. FY 2025 System efforts will include preparations, conduct, and closeout of SRSA-1. Preparations include final deliveries of the data products to be baselined at SRSA-1, to include requirements specifications, descriptive system model, system architectures, technical management processes					

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
and plans, integration plans, verification and validation plans, cybersecurity plans, system surety plans, program protection plans, lifecycle management plans, and executability statements. Documentation Baselined for SRSA-1: - Requirements specifications - Descriptive system model - System architectures - Technical management processes and plans - Integration plans - Verification and Validation plans - Cybersecurity plans - System surety plans - Program Protection plans - Lifecycle management plans - Executability statements Technology Investments: FY 2025 technology investments efforts continue for Missile and Guidance technologies to inform potential down selection and prototyping of scale design concepts. Continue: - Batteries design refinement and testing - Radiation Hardened Parts Solid State Switch (RHSSS) performance and qualification assessment - Radiation Hardened Parts characterization of selected vendor and technologies - Common Parts, Materials, and Processes (PMP) - Missile Common Parts database Model Based Engineering (MBE) models and characteristics for selected components captured - Radiation Hardened by Design (RHBD) circuit TRL/MRL evaluation - Data Bus testing and simulations of selected technologies from suppliers and Data Bus vendors - Parts program test equipment investments and Radiation test facility utilization - Linear Accelerator (LINAC) installation and checkout - PIVA Technologies Thruster valve - Hot gas testing of supplier designs transition to full duration testing					

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
- Material Life Cycle Assessment conducted - Structural and performance models updated - Delivery of trades study reports, Technical Development Assessment Report (TDAR) and model (structural and performance) CDRLs - PBCS Alt. Mfg. Process - Hot gas testing of material developed using Alt. Mfg. processes - Post-test analysis of material - Material Life Cycle Cost - Environment Durability Assessment - Delivery of trades study reports, TDAR and model developed - Nose Fairing component level trade studies to include tooling and processing strategies to refine component models with structural details, configurations, and material characterization - Equipment Section materials element level tests of advanced materials to refine material model performance, thermal, stress/structural analysis, and material characterization - Low Space Weight and Power solid-state inertial sensor prototyping, testing and evaluation - Advanced imaging technology prototyping, testing and evaluation - Inertial Measurement Unit electro-mechanical component prototyping, testing and evaluation - Prototype Avionics developmental testing of Hardware in the Loop environment - Guidance Navigation and Control Software and Algorithm Studies ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Missile technology costs decrease from FY2024 to FY2025 as efforts towards refinement, testing, and evaluation for Battery, Databus and parts program RDTE activities focus to down selected technologies and vendors. Missile technology costs decrease as supplier level testing and analysis completes. Guidance technology costs also decrease following completion of Guidance concept studies, electro-mechanical prototyping, single axis testing and evaluation. Finally, System Evaluation RDT&E decreases as the SRSA-1 is conducted and closed out.					
Title: System Engineering Modeling and Simulation	15.674	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2024 Plans:					

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 ***FY 2025 Base Plans:*** N/A ***FY 2025 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	168.098	192.003	113.187	0.000	113.187

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

D5LE2 will modernize D5LE under the TRIDENT II D5 existing acquisition program and remain an ACAT IC Major Defense Acquisition Program (MDAP). D5LE2 was declared a major subprogram of TRIDENT II D5 program in FY 2023. Instantiation of the D5LE2 subprogram will take effect at Milestone B in FY 2025 after completion of a System Level SRSA-2 and a Gate 5 review. To clarify the definition of design Milestones on top level schedules, SSP has renamed the previously defined SWS design milestones (SRR, PDR, and CDR) to Subsystem Redesign Sufficiency Assessment (SRSA-1, SRSA-2 and SRSA-3) with the exact same technical content as the previously defined reviews. This was done to avoid schedule confusion while maintaining the same technical rigor SSP demands of its design process. The Assistant Secretary of the Navy, for Research Development & Acquisition (ASN RDA) will continue as the Milestone Decision Authority (MDA) maintaining effective oversight for the proven, highly successful TRIDENT II D5 program to continue achieving desired cost, schedule, and performance outcomes. This acquisition approach minimizes technical and programmatic risk, ensuring on-time delivery of the performance needed to sustain the nation's sea-based strategic deterrent.

D5LE2 will be procured as a Strategic Systems Programs (SSP) Alteration (SPALT). SPALTs are an SSP process to insert new technologies into, extend the life of, or otherwise alter components of the Strategic Weapons System. SSP has performed many SPALTs over decades, from minor modifications to major component modernization (e.g. the first D5 Life Extension). SPALTs are executed under the TRIDENT II program to allow for seamless execution while maintaining the intent and rigor of acquisition oversight

Contracts will continue to be awarded to those sources who were engaged in program and are currently engaged in the production and/or operational support on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy			Date: March 2024
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Applications LMSS	SS/CPIF	LMSS : CA	218.192	58.045	Nov 2022	91.477	Oct 2023	54.288	Jan 2025	-		54.288	Continuing	Continuing	Continuing
Technical Applications DRAPER	SS/CPFF	Draper : MA	387.774	31.930	Nov 2022	42.204	Oct 2023	14.088	Oct 2024	-		14.088	Continuing	Continuing	Continuing
Technical Applications APL	SS/CPFF	APL : MD	22.409	29.600	Nov 2022	9.380	Oct 2023	13.540	Oct 2024	-		13.540	Continuing	Continuing	Continuing
Technical Applications VAR	Various	Various : Various	31.971	10.823	Nov 2022	7.224	Oct 2023	11.018	Oct 2024	-		11.018	Continuing	Continuing	Continuing
Technical Applications CRANE	SS/CPFF	NSWC Crane : IN	11.155	22.029	Nov 2022	22.363	Oct 2023	12.104	Oct 2024	-		12.104	Continuing	Continuing	Continuing
Technical Applications Dahlgren	WR	Dahlgren : VA	101.530	1.866	Nov 2022	1.706	Oct 2023	4.700	Oct 2024	-		4.700	Continuing	Continuing	Continuing
Technical Applications GDMS	SS/CPFF	GDMS : MA	5.631	4.136	Nov 2022	1.713	Dec 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications NGMS	SS/CPFF	NGMS : CA	0.000	0.681	Feb 2023	0.425	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications PSU ARL	SS/CPFF	ARL : PA	1.200	0.731	Dec 2022	0.493	Dec 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications SPA	SS/CPFF	SPA : VA	1.503	1.516	Nov 2022	1.356	Nov 2023	1.670	Oct 2024	-		1.670	Continuing	Continuing	Continuing
Technical Applications BAE	SS/CPFF	BAE : VA	3.137	2.004	Nov 2022	0.510	Oct 2023	1.400	Oct 2024	-		1.400	Continuing	Continuing	Continuing
Technical Applications LMRMS	SS/CPIF	LMRMS : NY	0.475	0.539	Jan 2023	0.599	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications China Lake	WR	China Lake : CA	0.634	0.088	Nov 2022	0.088	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications Carderock	WR	Carderock : MD	0.000	0.074	Feb 2023	0.074	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications Peraton	SS/CPFF	Peraton : VA	0.000	0.673	Feb 2023	1.413	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications Battelle	SS/CPFF	Battelle : OH	0.000	0.379	Feb 2023	0.796	Nov 2023	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy			Date: March 2024
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Applications EMCUBE	SS/CPFF	EMCUBE : VA	0.000	0.165	Feb 2023	0.269	Nov 2023	0.379	Oct 2024	-		0.379	Continuing	Continuing	Continuing
Technical Applications MARC	SS/CPFF	MARC : VA	0.000	0.097	Feb 2023	0.196	Nov 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Applications DEVCOM	MIPR	ARMY DEVCOM : MD	0.080	2.722	Feb 2023	9.717	Nov 2023	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	785.691	168.098		192.003		113.187		-		113.187	Continuing	Continuing	N/A

	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	785.691	168.098		192.003		113.187		-		113.187	Continuing	Continuing	N/A

Remarks

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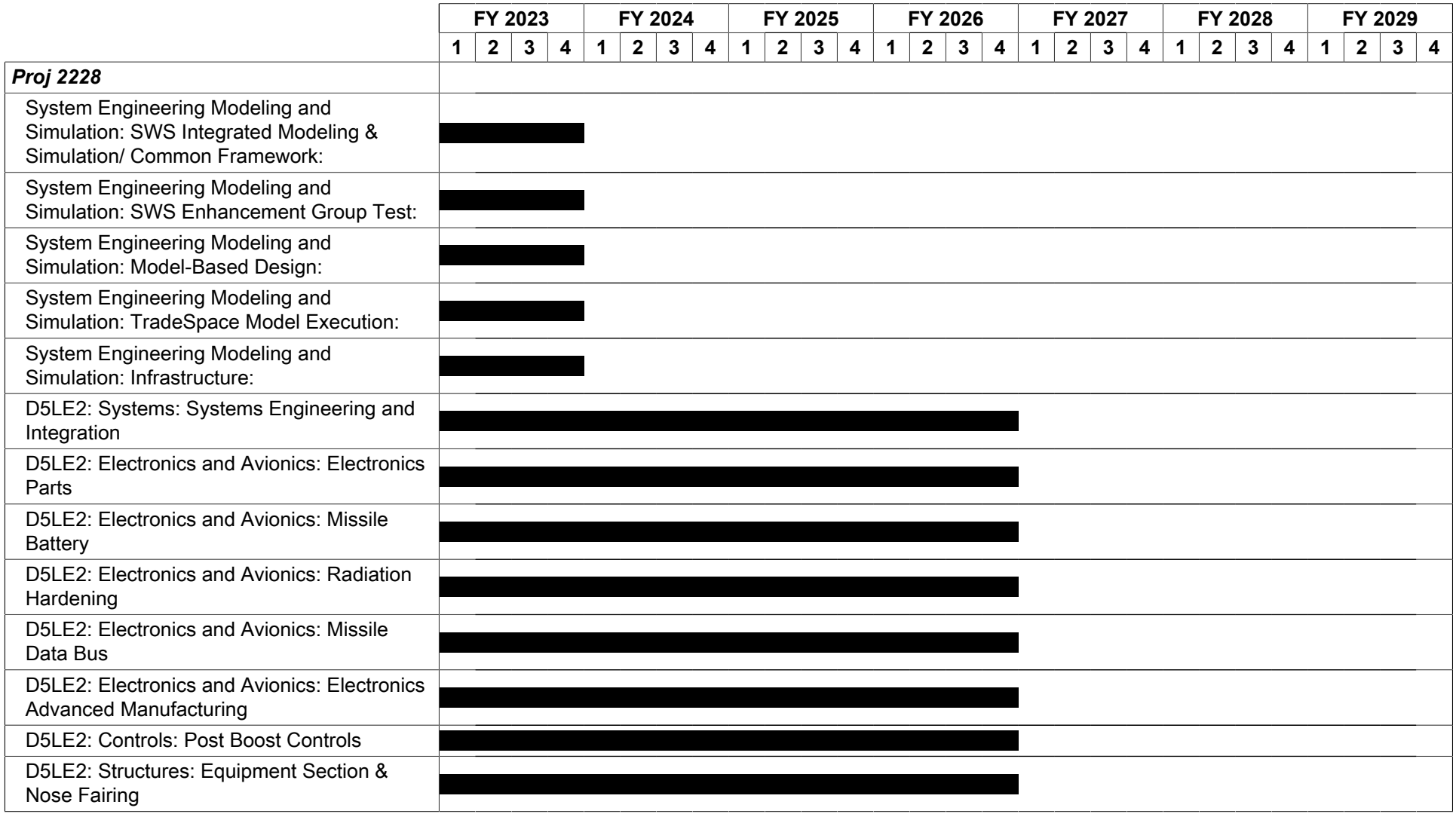

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
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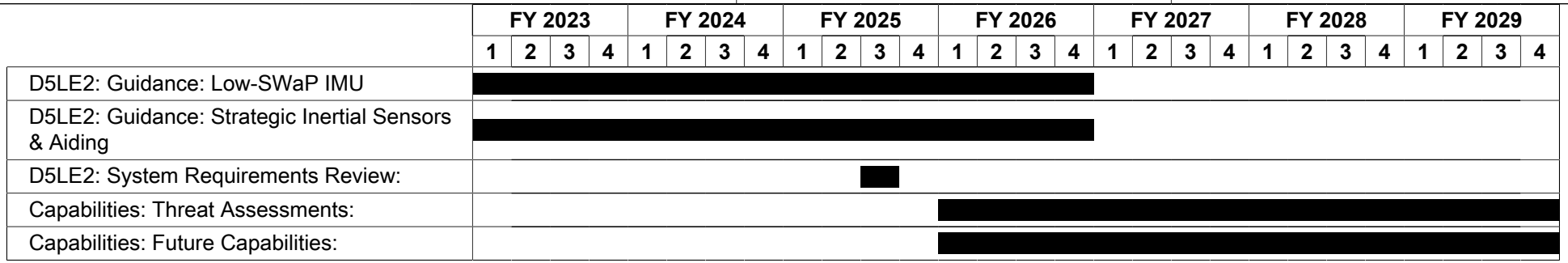

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2228				
System Engineering Modeling and Simulation: SWS Integrated Modeling & Simulation/ Common Framework:	1	2023	4	2023
System Engineering Modeling and Simulation: SWS Enhancement Group Test:	1	2023	4	2023
System Engineering Modeling and Simulation: Model-Based Design:	1	2023	4	2023
System Engineering Modeling and Simulation: TradeSpace Model Execution:	1	2023	4	2023
System Engineering Modeling and Simulation: Infrastructure:	1	2023	4	2023
D5LE2: Systems: Systems Engineering and Integration	1	2023	4	2026
D5LE2: Electronics and Avionics: Electronics Parts	1	2023	4	2026
D5LE2: Electronics and Avionics: Missile Battery	1	2023	4	2026
D5LE2: Electronics and Avionics: Radiation Hardening	1	2023	4	2026
D5LE2: Electronics and Avionics: Missile Data Bus	1	2023	4	2026
D5LE2: Electronics and Avionics: Electronics Advanced Manufacturing	1	2023	4	2026
D5LE2: Controls: Post Boost Controls	1	2023	4	2026
D5LE2: Structures: Equipment Section & Nose Fairing	1	2023	4	2026
D5LE2: Guidance: Low-SWaP IMU	1	2023	4	2026
D5LE2: Guidance: Strategic Inertial Sensors & Aiding	1	2023	4	2026
D5LE2: System Requirements Review:	3	2025	3	2025
Capabilities: Threat Assessments:	1	2026	4	2029
Capabilities: Future Capabilities:	1	2026	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*				Project (Number/Name) 3097 / *W-93 / Mk 7*			
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**
3097: *W-93 / Mk 7*	148.997	94.959	126.466	287.128	-	287.128	420.102	537.032	964.375	984.628	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 3097 RDTEN project has been designated as the W93/Mk7 warhead, a third variant for the TRIDENT. This project was formerly known as the Interoperative Warhead (IW); the name change to W93/Mk7 is reflected herein. This project will design, develop, and test a future warhead to include a new Navy Aeroshell for a Submarine Launched Ballistic Missile (SLBM). W93/Mk7 will mitigate risk from aging or technical failure by balancing the sea-leg warhead strategic force.

The U.S. has not delivered an integrated ballistic reentry system since the 1980s. Critical early investments are required for development of critical skills and recapitalization of the atrophied industrial base. The program will align to the President's priority of strengthening our Nation's manufacturing and defense industrial base while improving supply chain resiliency and reducing reliance on foreign countries by making critical investments in the aeroshell industrial base. In order to maintain a credible sea-based deterrent capable of the flexibility and adaptability necessary to meet future adversarial threats, the Department of Defense (DoD) and Department of Energy (DOE) / National Nuclear Security Administration (NNSA) have initiated a joint DoD-DOE/NNSA Nuclear Weapons Life-Cycle Process.

Progress and activity (Phase 1 - 2/2A):

- Early efforts primarily consist of developing programmatic planning and structure to support the future program along with further exploration and refinement of the concept studies that resulted from the Feasibility Management Team Study, which was directed in the 2018 Nuclear Posture Review (NPR). Following the results of the Feasibility Management Team Study, refinement of the concept study will be accomplished through system trade studies and drafting initial high level requirements documents in order to support the program entering a Phase 2 (Feasibility Study and Design Options) / 2A (Design Definition and Cost Study).
- As part of the Phase 1 analysis, U.S. Navy Strategic Systems Programs and the NNSA have identified ways to reduce the overall burden on the Nation's weapons complex and nuclear enterprise facilities through innovative design and logistics planning. These changes to legacy planning factors will result in significant cost reduction to the program's sustainment and lifecycle costs.
- Development and submission of Executive Report to Nuclear Weapons Council (NWC) outlines analysis and findings from Phase 1 which will serve as the baseline for further analysis of refined and matured concept designs in Phase 2.
- Identify necessary investments and align OSD stakeholders on planned investments within the nuclear enterprise.
- Develop draft military characteristics, stockpile to target sequence and identified interdependencies between requirement drivers of DoD and DOE.
- Develop initial nuclear enterprise assurance and supply chain protection considerations.
- Draft threat and vulnerability assessments as well as safety, security, and use control architectures.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**
Title: W93 / Mk7	94.959	126.466	287.128	0.000	287.128

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Articles:	-	-	-	-	-
FY 2024 Plans: - Conduct Thermal Protection System (TPS) System Requirements Review. - Conduct Development-1Flight Test Body Critical Design Review. - Continue analysis of each design option. - Continue analysis of ability to meet system requirements, define production quantities, which includes Surveillance and War Reserve quantities. - Continue review of planned support equipment, facility upgrades and technical publications. - Continue to refine requirements documents (Military Characteristics, Stockpile-to-Target Sequence, and Interface Control Drawings). - Continue development of qualification and certification requirements. - Identify and certify manufacturing processes and supply chains for new-builds of substrates, heatshield material from new rayon source, antenna windows, and other non-nuclear components critical to the thermal protection system. - Continue development of instrumentation for thermomechanical and aerothermal testing to certify components for flight test and system qualification. - Continue purchase of capital equipment to support aeroshell industrial base recapitalization effort; creates efficiency and reduces operational/maintenance risk. - Continue analysis of carbonization and heat shield capacity in support of TPS/Aeroshell requirements. - Conduct microstructure analysis of legacy substrate material. - Procure and conduct analysis of new substrate material to be used in future aeroshell production. - Begin to define project scope and design definition in preparation for Phase 2A. - Begin development of integrated project requirements management plan and project schedule.					
FY 2025 Base Plans: - Conduct Development-1Flight Test Body Critical Design Review. - Complete Assembly, Integration, and Test of Development -1 Flight Test Body - Conduct Development -2 Flight Test Body Critical Design Review - Continue analysis of each design option. - Continue analysis of ability to meet system requirements, define production quantities, which includes Surveillance and War Reserve quantities. - Continue review of planned support equipment, facility upgrades and technical publications.					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
- Continue to refine requirements documents (Military Characteristics, Stockpile-to-Target Sequence, and Interface Control Drawings). - Continue development of qualification and certification requirements. - Continue to mature the manufacturing processes and supply chains for new-builds of substrates, heatshield material from new rayon source, antenna windows, and other non-nuclear components critical to the thermal protection system. - Continue development of instrumentation for thermomechanical and aerothermal testing to certify components for flight test and system qualification. - Continue purchase of capital equipment to support aeroshell industrial base recapitalization effort; creates efficiency and reduces operational/maintenance risk. - Continue analysis of carbonization and heat shield capacity in support of TPS/Aeroshell requirements. - Continue analysis of new substrate material to be used in future aeroshell production. - Continue project scope and design definition in preparation for Phase 2A. - Maintain the integrated project requirements management plan and project schedule. - System First Production Unit (FPU) acceleration as defined in the 2023 Requirements Planning Document (RPD) will drive additional DOD hardware procurements to support earlier testing needs - FPU acceleration also requires an acceleration of staffing at all industry partners to accelerate system design activities ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Increase from FY 2024 to FY 2025 as program moves to subsystem design reviews. From FY 2024 to FY 2025, activities are increased throughout Phase 2 (Feasibility Study and Design Options) as personnel ramp to support schedule, cost, design and development planning to meet defined First Production Unit (FPU) date. Increase from FY 2023 to FY 2025 is further exacerbated by the acceleration of the W93/Mk7 FPU as defined in the 2023 Requirements Planning Document (RPD).					
Accomplishments/Planned Programs Subtotals	94.959	126.466	287.128	0.000	287.128

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Contracts will be awarded to those sources who were engaged in the ALT 370 program and are currently engaged in the production and/or operational support of the deployed W78/88-1 Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
W93/Mk7	SS/CPIF	LMS : PA	83.490	39.681	Nov 2022	57.384	Nov 2023	130.000	Nov 2024	-		130.000	Continuing	Continuing	Continuing
W93/Mk7	MIPR	DOE : NM	24.608	26.130	Oct 2022	34.500	Nov 2023	95.000	Nov 2024	-		95.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	ARCFIELD : VA	8.602	4.475	Mar 2023	5.000	Nov 2023	6.000	Nov 2024	-		6.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	APL : MD	15.310	2.222	Mar 2023	7.000	Nov 2023	8.000	Nov 2024	-		8.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	Various : Various	3.793	3.780	Dec 2022	3.490	Nov 2023	18.128	Nov 2024	-		18.128	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	BAE : MD	0.800	1.000	Dec 2022	0.987	Dec 2023	5.000	Dec 2024	-		5.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	NSWC RSO : MD	7.337	13.552	Feb 2023	13.835	Nov 2023	14.000	Nov 2024	-		14.000	Continuing	Continuing	Continuing
W93/Mk7	C/CPFF	SPA : VA	0.554	0.510	Feb 2023	0.520	Jan 2024	2.000	Jan 2025	-		2.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	TOYON : CA	4.503	1.354	Oct 2022	1.450	Nov 2023	0.000	Nov 2024	-		0.000	Continuing	Continuing	Continuing
W93/Mk7	WR	CNSW : IN	0.000	2.000	Feb 2023	2.040	Nov 2023	2.000	Nov 2024	-		2.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	EMCUBE : VA	0.000	0.255	Mar 2023	0.260	Nov 2023	1.000	Nov 2024	-		1.000	Continuing	Continuing	Continuing
W93/Mk7	MIPR	NSWCDD : VA	0.000	0.000		0.000		6.000	Nov 2024	-		6.000	0.000	6.000	-
		Subtotal	148.997	94.959		126.466		287.128		-		287.128	Continuing	Continuing	N/A

	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	148.997	94.959		126.466		287.128		-		287.128	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

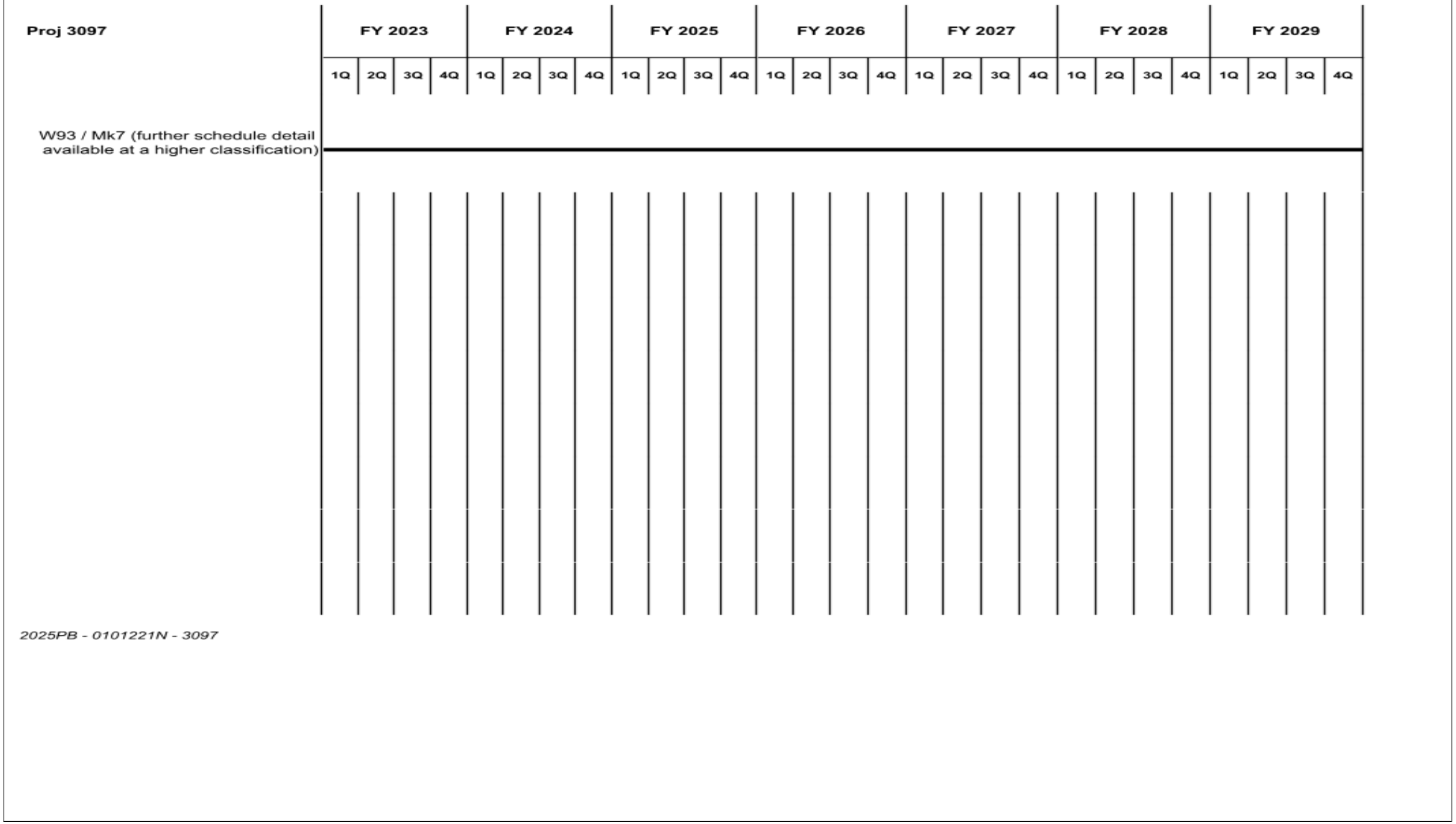


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3097				
W93 / Mk7 (further schedule detail available at a higher classification):	1	2023	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy											Date: March 2024	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*				Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*			
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**
3158: *Integrated Nuclear Weapons Security Sys Dev*	19.000	3.307	3.179	3.179	-	3.179	3.240	3.297	3.364	3.435	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Enhanced Special Weapons effort supports the Nuclear Weapons Security (NWS) program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay or Naval Submarine Base, Bangor where missiles are assembled/disassembled, tested as well as repaired. The CNO has assigned SSP, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear assets. More specifically, the mission includes landside and pier operations as well as transits to and from the dive point, each of which present challenges to personnel as well as existing technologies. This budget supports efforts directed at improving the current security technological baseline through a series of technology developments, tests, and studies focusing on land and in transit security requirements. Collectively, these efforts will improve countermeasure technologies addressing detection, delay, denial, and defeat.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**
Title: Integrated Nuclear Weapons Security Sys Dev	3.307	3.179	3.179	0.000	3.179
Articles:	-	-	-	-	-
FY 2024 Plans: Continue to identify, develop, and test technologies needed for aerial and underwater surveillance, for detection and defeat (passive and active) of unmanned aircraft systems and unmanned underwater vehicles. Continue investing in technologies that aide in mitigating risks posed by cyber-security threats, assess susceptibility and vulnerability to malicious activities, and strengthen against unauthorized access to electronic security systems.					
FY 2025 Base Plans: Continue to identify, develop, and test technologies needed for aerial and underwater surveillance, for detection and defeat (passive and active) of unmanned aircraft systems and unmanned underwater vehicles. Continue investing in technologies that aide in mitigating risks posed by cyber-security threats, assess susceptibility and vulnerability to malicious activities, and strengthen against unauthorized access to electronic security systems.					
FY 2025 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

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					
Accomplishments/Planned Programs Subtotals	3.307	3.179	3.179	0.000	3.179

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN/Various-2: *OPN (Nuclear Weapons Security)*	39.837	37.749	38.460	-	38.460	39.335	40.086	40.886	0.000	Continuing	Continuing
• OMN/11D2D-3: *Fleet Ballistic Missile (Nuclear Weapons Security)*	103.468	110.641	103.515	-	103.515	106.022	107.706	110.137	0.000	Continuing	Continuing
• OMN/11D2D-5: *Fleet Ballistic Missile (Transit/Escort)*	117.906	119.321	120.924	-	120.924	123.251	125.736	128.251	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Procurements are being executed through a combination of private contractors (large and small business), government Centers of Excellence (COEs), other government agencies and the Naval Submarine Bases, Kitsap and Kings Bay. Contract awards are based upon "best value" determinations, and where practical will be performance based or include incentive provisions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

Product Development ($ in Millions)

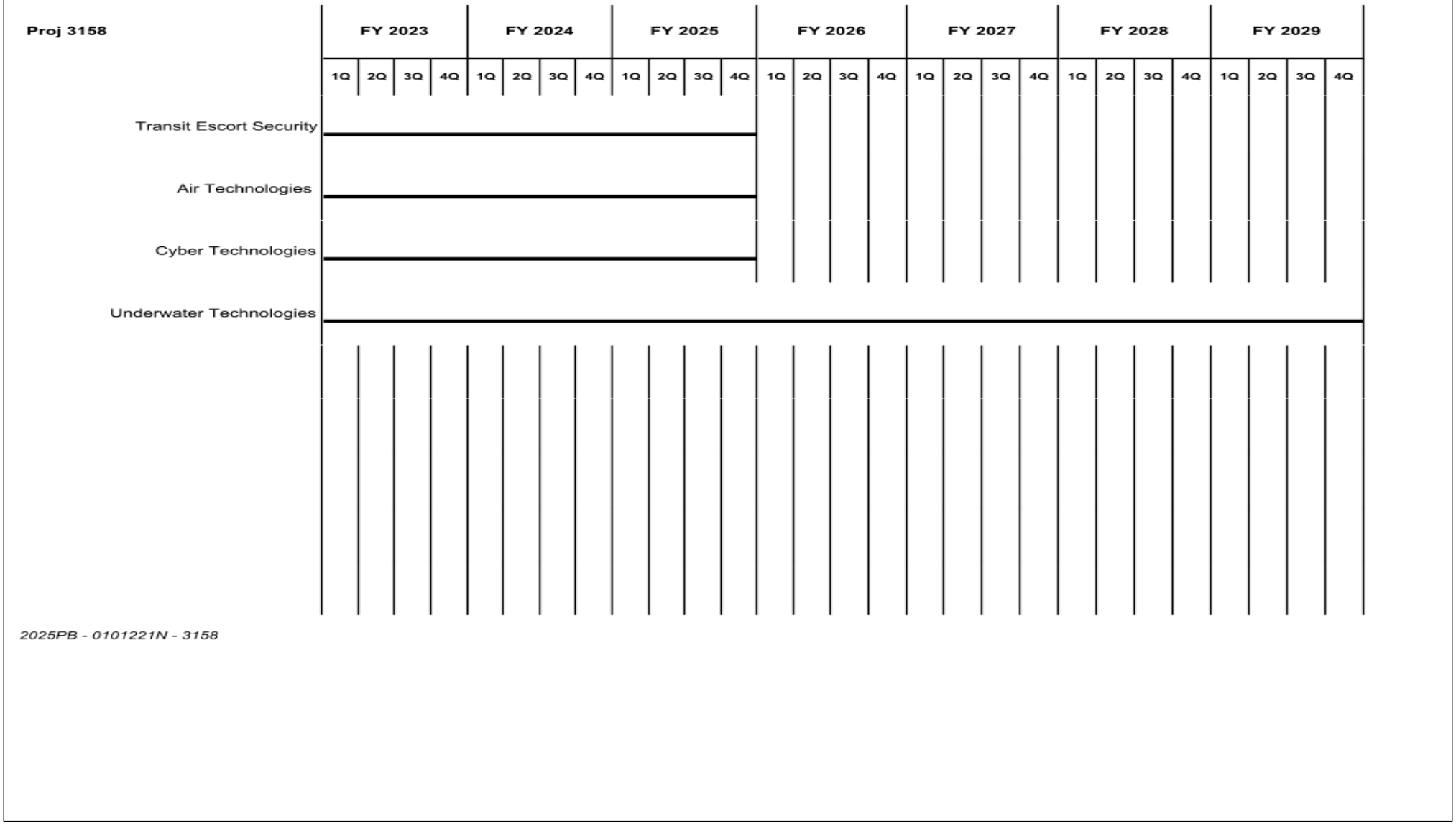
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	APL : MD	4.369	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	JRC : VA	3.872	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	DRAPER : MA	0.556	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	CNWS : ID	5.099	1.817	Feb 2023	1.135	Nov 2023	1.044	Nov 2024	-		1.044	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	GDMS : MA	2.020	0.394	Feb 2023	0.000	Nov 2023	0.426	Nov 2024	-		0.426	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	ARL : TX	0.000	0.290	Feb 2023	0.489	Oct 2023	0.482	Nov 2024	-		0.482	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	SPA : VA	0.870	0.446	Feb 2023	0.467	Nov 2023	0.197	Nov 2024	-		0.197	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	EMCUBE : VA	0.381	0.360	Feb 2023	0.101	Dec 2023	0.040	Nov 2024	-		0.040	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	ASC : CA	0.800	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	WR	DAHLGREN : VA	0.325	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	WR	KEYPORT : VA	0.315	0.000		0.000		0.490	Nov 2024	-		0.490	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	Various	various : various	0.393	0.000		0.000		0.246	Nov 2024	-		0.246	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	WR	NIWC Pacific : CA	0.000	0.000		0.987	Nov 2023	0.254	Nov 2024	-		0.254	0.000	1.241	-
		Subtotal	19.000	3.307		3.179		3.179		-		3.179	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

	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	19.000	3.307		3.179		3.179		-		3.179	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*



2025PB - 0101221N - 3158

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3158				
Transit Escort Security:	1	2023	4	2025
Air Technologies:	1	2023	4	2025
Cyber Technologies:	1	2023	4	2025
Underwater Technologies:	1	2023	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 9999 / *Congressional Adds*	

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
9999: *Congressional Adds*	31.856	27.025	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	58.881
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional adds to support:

- Next Generation Strategic Inertial Measurement Unit will research, develop and demonstrate radiation-hardened navigation technologies for reentry specific applications, strategic grade inertial instruments, software, electromechanical components and algorithms that exercise strategic skills and are applicable to the long-term viability of the nation's strategic grade guidance systems.

- Multimodal biometric authentication supports the investigation and development of biometric technology.

- Strategic weapons systems shipboard navigation system modernization will conduct improvement backlog assessment, estimation, and prioritization; evaluation on the sustainability of all Navigation Subsystem Auxiliary Systems and incorporate cyber resilient methods and strategies into the build and production process for targeted Navigation Software Configuration Items (SWCIs).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
Congressional Add: Next Generation Strategic Inertial Measurement Unit	9.654	0.000
FY 2023 Accomplishments: Build and test Quantity 3 HyperFlite Engineering Development Unit (EDU) IMUs; including detailed calibration, thermal excursions and ground based environmental test cells Further reduce Size Weight and Power for hypersonic and strategic platforms Integrate HyperFlite EDU IMU flight test data into a model, including updates to modeled parameters where applicable Develop HyperFlite IMU based avionics architecture and concept designs, assuming an optimized HyperFlite design Execute a minimum of one flight test with a HyperFlite EDU IMU, to support progression of TRL ***FY 2024 Plans:*** N/A		
Congressional Add: Multimodal biometric authentication	7.717	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
FY 2023 Accomplishments: Funding provided for investigation/development of multimodal biometric authentication. Achieved a method of applying biometric techniques to supplement Columbia's Identity Access Management (IDAM) solution to enhance the security of sensitive information. ***FY 2024 Plans:*** Continue discovery of potential use cases for biometric authentication solutions within the Columbia/Project Blue ecosystem. Initiate a proof-of-concept deployment of biometric authentication capability to the Project Blue Mission Environment (PBME). Biometric solution will be integrated with the Single Sign on (SSO) solution as an optional add on.		
Congressional Add: Navigation modernization capabilities	9.654	0.000
FY 2023 Accomplishments: - Conduct and support Broad Band Navigation Sonar (BBNS) Future Navigation Capability (FNC) development and test activities including develop software architecture and design to support BBNS FNC, develop BBNS FNC test plans and procedures for testing in Ashore Navigation Center (ANC) and Sea Navigation Center (SNC), Implement software and integrate GFI software components, Conduct test, validation and data analysis per approved Test Plans, Support BBNS FNC meetings, product reviews, and Technical Interchange Meetings - Using the artifacts (e.g., software, test procedures, etc) developed for the BBNS FNC demonstration develop and submit BBNS FNC SWT Plan and Procedures for onboard SSBN testing, Conduct onboard SWT and data analysis per the approved Test Plan, - Evaluate and assess potential BBNS functionalities and develop design that allows incorporation of potential BBNS functionalities into the tactical baseline. The assessment should include an analysis of alternatives concerning determination of areas of overlap and uniqueness between NSS and BBNS; assessment of existing tactical and prototype software code with respect to cyclomatic complexity, modularity, and other software quality metrics. - Support and collaborate with the SWS Shipboard Modernization Program Working Groups. - Provide support for and collaboration with Shipboard partners to include development of Navigation Modernization concepts, technologies, and designs compatible with Shipboard Architecture Modernization Objectives, establishment of a Navigation Development Roadmap integrated with the Shipboard Modernization Program, and execution of trade studies in support of Program Increment Objectives. - Provide support for and collaboration with Navigation Future Capabilities Working Groups. - Investigate development of the system design to enhance the current bathymetric fix capability to a broader ocean environment - support prototype development of a Navigation MBSE Descriptive System Model (DSM) in support of the DoD Digital Engineering Strategy, digital transformation, and migration of legacy requirements and design information		

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
- Support investigation and definition of the evolution of the current NAV architecture in terms of system logical / functional, physical, and interfaces - support development and tactical incorporation of the system design to modernize filter and monitor functions in the Navigation Subsystem in support of Enhanced Pre-launch development activities - support a trade study for implementing encryption/decryption of the U.S. Naval Oceanographic Office (NAVO) provided-Navigation Map Data Reference Disk (NMRD) bathymetric and gravity disc for use on SSBN patrols ***FY 2024 Plans:*** N/A		
Congressional Adds Subtotals	27.025	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Where possible RDTEN Congressional Adds shall be competitively awarded, or provided to programs that have received competitive awards in the past. Alternatively, contracts will be awarded to those sources who were engaged in program and are currently engaged in the production and/or operational support on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Next Generation SIMU	SS/CPFF	Draper Labs* : Cambridge, MA	17.376	9.654	Mar 2023	0.000		0.000		-		0.000	0.000	27.030	-
SWS Shipboard Navigation System Modernization	SS/CPFF	LMRMS : Uniondale, NY	14.480	9.654	Mar 2023	0.000		0.000		-		0.000	0.000	24.134	-
Multimodal Biometric Authentication	C/FFP	Defense Unicorns : Prairie Village, KS	0.000	7.717	Sep 2023	0.000		0.000		-		0.000	0.000	7.717	-
		Subtotal	31.856	27.025		0.000		0.000		-		0.000	0.000	58.881	N/A

Remarks

*Significant sub-contractor is Moog Inc in East Aurora, NY.

	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	31.856	27.025		0.000		0.000		-		0.000	0.000	58.881	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

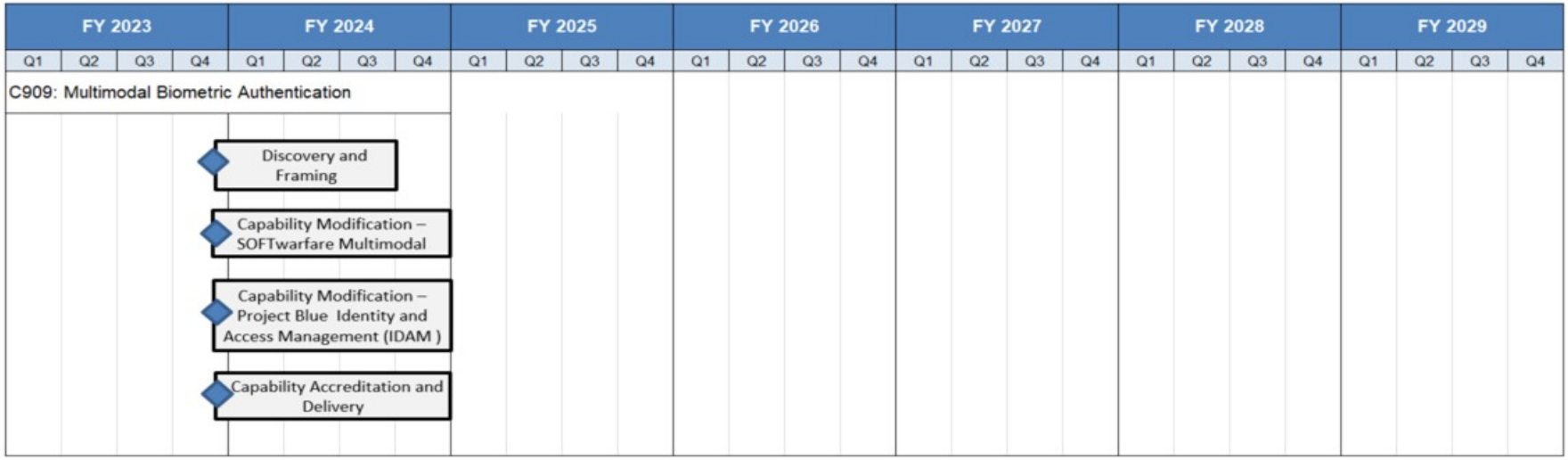


Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Congressional Add: Next Generation Strategic Inertial Measurement Unit: Next Generation Strategic Inertial Measurement Unit	1	2023	4	2024
Congressional Add: Strategic Weapons Systems Shipboard Navigation System Modernization: Strategic Weapons Systems Shipboard Navigation System Modernization	1	2023	4	2024
Congressional Add: Multimodal Biometric Authentication				
Discovery and Framing	4	2023	3	2024
Capability Modification - SOFTwarfare Multimodal Biometric Authentication	4	2023	4	2024
Capability Modification - Project Blue IDAM	4	2023	4	2024
Capability Accreditation and Delivery	4	2023	4	2024