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 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603562N *I Submarine Tactical Warfare Sys*

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	139.852	10.626	15.119	14.924	-	14.924	14.137	12.520	12.583	12.841	Continuing	Continuing
0770: *Adv Sub Supp Equip Prog*	43.327	3.585	7.791	7.514	-	7.514	6.637	4.910	4.905	5.006	Continuing	Continuing
1739: *Submarine Arctic W/F Development*	96.525	7.041	7.328	7.410	-	7.410	7.500	7.610	7.678	7.835	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) addresses advanced submarine technology areas in support of the Navy's strategic objective of Assured Access and Combat Credibility. All projects funded in this PE are non-Acquisition Category (ACAT) programs.

PROJECT 0770 - The Advanced Submarine Support Equipment Program (ASSEP) objective is to improve submarine operational effectiveness through the implementation of advanced Research and Development (R&D). In order to provide improved operational effectiveness, efforts are focused on advanced Imaging and Electronic Warfare (EW) support development. A continuing need exists to improve these capabilities in view of the advancements in potential imaging counter-detection, the need to support specialized missions, and the increasingly dense and sophisticated electronic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Ongoing developments include improved antennas, tethered buoy, 360-degree imaging systems, and electro-optic infra-red (EO/IR) vulnerability signature reduction technologies. Beginning in FY 2024, this project supports the development of changes internal to submarine platforms to integrate the Submarine Tethered Expendable Buoy (STEB). This integration will provide a communications path to and from the buoy bringing buoy sensor data into the submarine combat system to improve situational awareness and tactical control while maintaining a covert posture.

PROJECT 1739 - The Submarine Arctic Warfare Development Project is aligned to Commander, Undersea Warfighting Development Center (UWDC), Detachment Arctic Submarine Laboratory (ASL). This Project provides the U.S. Navy Submarine Force (SUBFOR) a cadre of trained Arctic Operation Specialists (AOS) and an inventory of unique Arctic sensors that are installed to optimize submarine safety during under-ice operations. AOS personnel assigned from ASL embark on submarines that deploy to the Arctic, cold water and iceberg regions, and marginal ice zones (MIZ) in northern latitudes of the Atlantic and Pacific Oceans, and are advisers to the Commanding Officer. ASL is a shore facility at Naval Base Point Loma with the infrastructure capable of supporting personnel and equipment to conduct the submarine Arctic Warfare Development mission. Improvements and life-cycle expenditures to the facility and warehousing are made as necessary to support the mission.

The Submarine Arctic Warfare Development Project, via ASL, responds to the increased threat of naval activity in the Arctic regions while continuously supporting the Navy's strategic objective of Assured Access and Combat Credibility. ASL provides a unique capability that enables the SUBFOR to satisfy the requirements laid out in the Arctic Maritime Homeland Defense Initial Capabilities Document (ICD). ASL and SUBFOR demonstrate existing Arctic Warfare capabilities and operational and tactical proficiency while developing advanced submarine technology in unique cold water environments, in under-ice conditions, and in ice-covered shallow water regions during a biennial Ice Exercise (ICEX). ICEX places an emphasis on submarine operability and mission capability in the world's harshest maritime environment. Efforts include assessment of combat system effectiveness, weapons testing, use of High Frequency (HF) sonars in Arctic regions, testing of ice-capable submarine structures, and development of class-specific Arctic operational guidelines. Tactical Development (TACDEV) ICEXs are conducted biennially and require

up front comprehensive planning and work-up training, as well as post exercise analysis and reporting. ICEXs provide the framework for various submarine test and evaluation in Arctic regions and at periodic Ice Camps. This program represents DoD's only drifting ice station capability. Emphasis during ICEX is placed on the areas of sonar operability, tactical surveillance, weapon utility, and other submarine support missions. These efforts include the assessment of combat system effectiveness, development of Arctic specific improvements for existing sonar and weapons, development of class-specific Arctic operational guidelines, and testing of ice-capable submarine support structures.

A torpedo firing ICEX occurs every four (4) years (FY 2024, FY 2028, etc.) in order to meet minimum Fleet requirements of exercise torpedo (EXTORP) firings in the Arctic. A Torpedo Exercise (TORPEX) requires a significantly higher level of logistics, personnel, and infrastructure to account for the recovery and transportation efforts of the EXTORPs. The ICEX Program also includes Arctic Exercise (ARCEX), a biennial exercise that rotates with the biennial ICEX drifting ice camps, that includes Arctic operations to support ice camp equipment evaluation, systems development, extreme cold weather training, drifting sea ice and scientific research.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	10.808	15.119	15.171	-	15.171
Current President's Budget	10.626	15.119	14.924	-	14.924
Total Adjustments	-0.182	0.000	-0.247	-	-0.247
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.003	0.000			
• SBIR/STTR Transfer	-0.180	0.000			
• Rate/Misc Adjustments	0.001	0.000	-0.247	-	-0.247

Change Summary Explanation

FUNDING CHANGES SINCE THE PREVIOUS PRESIDENT'S BUDGET AT THE OVERALL PE LEVEL:
- FY 2023 net decrease of $-0.182M reflects the Small Business Innovative Research (SBIR) transfer ($-0.180M) and the incorporation of other miscellaneous rate adjustments ($-0.002M).
- FY 2025 decrease of $-0.247M reflects the incorporation of miscellaneous rate adjustments.

PROJECT 0770:
- FY 2024 TO FY 2025 BUDGET REQUEST DECREASE: FY 2024 ($7.791M) to FY 2025 ($7.514M) decrease ($-0.277M) is the result of miscellaneous rate adjustments that will reduce the testing duration of certain sensors in FY 2025.

PROJECT 1739:

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 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603562N *I Submarine Tactical Warfare Sys*

- FY 2024 TO FY 2025 BUDGET REQUEST INCREASE: FY 2024 ($7.328M) to FY 2025 ($7.410M) increase ($+0.082M) is in line with the inflation expected with the RDT&EN appropriation.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603562N / *Submarine Tactical Warfare Sys*	Project (Number/Name) 0770 / *Adv Sub Supp Equip Prog*	

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
0770: *Adv Sub Supp Equip Prog*	43.327	3.585	7.791	7.514	-	7.514	6.637	4.910	4.905	5.006	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

A continuing need exists to improve Imaging and Electronic Warfare (EW) support capabilities in view of the advancements in potential imaging counter-detection and the increasingly dense electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine Imaging and EW to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection, and Joint Strike. This project will concurrently consider both Imaging and EW domains as improved mast systems are designed. The evaluation of state-of-the-art technology to implement periscope/mast improvements via EW electromagnetic and electro-optic sensors results in improved capability. Engineering Development Models (EDMs) are developed, evaluated, and validated in the lab and through at-sea testing.

This project is a non-Acquisition Category (ACAT) program. The test articles identified consist of critical components that will be fully developed during Engineering Manufacturing and Development phase into EDMs. Software-based capabilities in Imaging and/or EW domains that will process inputs from improved masts may be integrated and tested within this project.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Imaging and Electronic Warfare (EW) Support Capabilities	3.585	5.452	5.062	0.000	5.062
Articles:	-	-	-	-	-
FY 2024 Plans: - Continue development of the advanced Imaging and EW sensor configuration for submarine periscopes. - Expand imaging algorithms to other imaging sensors in new masts such as Short Wave Infra-Red (SWIR). - Develop, test, and integrate new antenna configurations to support improved radar Direction Finding (DF) (Multiband Omni + Direction Finding Array (MODA) Antenna), including at-sea test plan preparation, at-sea test conduct, and performance analysis. - Develop, test, and integrate smaller form-factor antennas to expand periscope sensing and DF frequency range, including: ruggedize hardware for easier integration, upgrade server classification level for use on wider range of test campaigns, improve bandwidth of data capture through software updates, and support technology transfer of systems to programs of record. - Conduct at-sea testing of new sensors under consideration to verify performance meets operational needs. - Continue sensor stack prototyping to support testing to validate approach before transitioning to Program Executive Office, Undersea Warfare Systems (PEO UWS) for integration into submarine masts.					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
- Investigate and test design options for fiber optics, fiber optic spooling mechanisms, and lifting body. - Conduct at-sea testing of Imaging and EW tethered buoy to verify performance meets operational needs. - Fabricate ten (10) prototype units to support at-sea testing. ***FY 2025 Base Plans:*** - Continue development of the advanced Imaging and EW sensor configuration for submarine periscopes. - Fabricate and test smaller form-factor antennas to expand periscope sensing and DF frequency range. - Analyze data to determine efficacy of improved DF array polarization sensing approach. - Leverage previous efforts to produce a smaller antenna suite, accommodating insertion of new antenna technology. - Integrate new antenna technology into legacy tactical mast antennas. - Develop Submarine Tethered Expendable Buoy (STEB) payload enhancements to broaden communication capabilities. - Develop TEMPALT package for improved DF antenna array. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** - FY 2024 ($5.452M) to FY 2025 ($5.062M) decrease ($-0.390M) is the result of miscellaneous rate adjustments that will reduce the testing duration of certain sensors in FY 2025.					
Title: Submarine Tethered Expendable Buoy (STEB) Transition	0.000	2.339	2.452	0.000	2.452
Articles:	-	-	-	-	-
Description: This effort supports the development of changes internal to submarine platforms to integrate the STEB. This integration will provide a communications path to and from the buoy bringing buoy sensor data into the submarine combat system to improve situational awareness and tactical control while maintaining a covert posture. ***FY 2024 Plans:*** - Initiate design and development of physical connections from the Imaging and EW tethered buoy launcher to the Submarine Warfare Federated Tactical System (SWFTS). - Initiate and complete design of Buoy Inboard Unit (BIU). - Investigate and test buoy/launcher compatibility and refine design as necessary. - Initiate design and development of Imaging and EW tethered buoy signal processing and control technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
- Develop communication and imaging software interfaces. ***FY 2025 Base Plans:*** - Finalize design of physical connections from the Imaging and EW tethered buoy launcher to SWFTS. - Complete design and test of BIU. - Continue design and development of Imaging and EW tethered buoy signal processing and control technologies. - Continue design and development of the distribution and processing plan for Imaging and EW tethered buoy. - Conduct at-sea testing on submarine platform to verify buoy integration communications path. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** - FY 2024 ($2.339M) to FY 2025 ($2.452M) increase ($+0.113M) is in accordance with the original phasing of the STEB project.					
Accomplishments/Planned Programs Subtotals	3.585	7.791	7.514	0.000	7.514

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/0603561N/0223: *Combat System Improvement (ADV)*	56.339	60.360	60.407	-	60.407	61.847	61.682	60.867	62.109	Continuing	Continuing

Remarks

D. Acquisition Strategy

- This project is a non-Acquisition Category (ACAT) program.
- This project optimizes technology insertion using a build-test-build approach to support EW and Imaging operational needs. This project develops submarine unique improvements to mast, periscope, and EW electromagnetic spectrum and electro-optic sensors based on emerging technologies that are available from DoD Exploratory Development Programs, industry Independent Research and Development, and other sources. EDMs will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

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
Imaging, EW, and STEB Support Capability Development	C/CPFF	JHU/APL : MD	2.478	0.000		0.000		0.000		-		0.000	0.000	2.478	-
Imaging, EW, and STEB Support Capability Development	C/CPFF	Lockheed Martin : VA	1.773	0.744	Dec 2022	1.925	Nov 2023	1.890	Dec 2024	-		1.890	Continuing	Continuing	Continuing
Imaging, EW, and STEB Support Capability Development	MIPR	MIT/LL : MA	2.997	1.135	Dec 2022	1.650	Jan 2024	1.610	Dec 2024	-		1.610	Continuing	Continuing	Continuing
Imaging, EW, and STEB Support Capability Development	WR	NUWC : RI	31.092	0.443	Nov 2022	2.624	Nov 2023	2.594	Nov 2024	-		2.594	Continuing	Continuing	Continuing
Imaging, EW, and STEB Support Capability Development	C/FFP	PSU/ARL : PA	1.280	0.698	Dec 2022	0.550	Feb 2024	0.550	Dec 2024	-		0.550	Continuing	Continuing	Continuing
Imaging, EW, and STEB Support Capability Development	C/FFP	Toyon Research Corp : CA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
Imaging, EW, and STEB Support Capability Development	C/FFP	VAR : VAR*	1.478	0.000		0.467	Dec 2023	0.295	Dec 2024	-		0.295	Continuing	Continuing	Continuing
		Subtotal	41.598	3.020		7.216		6.939		-		6.939	Continuing	Continuing	N/A

Remarks

* Consists of multiple performing activities with funding for each not greater than $1M per year.

Management Services ($ 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
Program Office Travel	WR	NAVSEA : DC	0.473	0.025	Oct 2022	0.025	Oct 2023	0.025	Oct 2024	-		0.025	Continuing	Continuing	Continuing
Program Management	C/FFP	KMS Solutions* : VA	1.256	0.540	Dec 2022	0.550	Feb 2024	0.550	Dec 2024	-		0.550	Continuing	Continuing	Continuing
		Subtotal	1.729	0.565		0.575		0.575		-		0.575	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

Management Services ($ 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

Remarks

* In addition to program office support, KMS Solutions provides technical planning, systems engineering, and test support. KMS Solutions also provides Subject Matter Experts (SMEs) for technical Peer Review Working Groups and Integrated Product Teams (IPTs) in support Electronic Warfare capability 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	43.327	3.585		7.791		7.514		-		7.514	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

Advanced Submarine Support Equipment Program

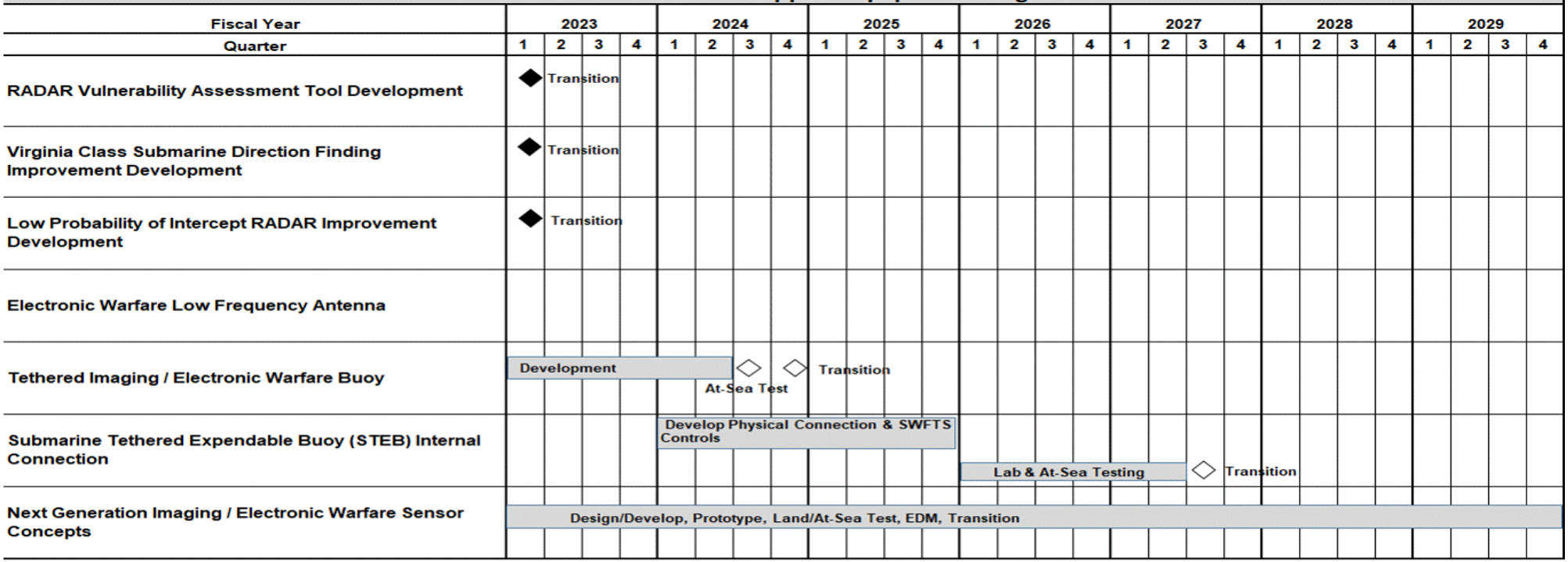

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Imaging and Electronic Warfare Support Capabilties				
RADAR Vulnerability Assessment Tool - Transition to PEO UWS Production Program	1	2023	1	2023
Virginia Class Submarine Direction Finding Improvement - Transition to PEO UWS Production Program	1	2023	1	2023
Low Probability of Intercept RADAR Improvement - Transition to PEO UWS Production Program	1	2023	1	2023
Tethered Imaging/Electronic Warfare Buoy - Development	1	2023	2	2024
Tethered Imaging/Electronic Warfare Buoy - At-Sea Test	3	2024	3	2024
Tethered Imaging/Electronic Warfare Buoy - Transition to PEO UWS Production Program	4	2024	4	2024
Submarine Tethered Expendable Buoy (STEB) Internal Connection Development	1	2024	4	2025
Submarine Tethered Expendable Buoy (STEB) Internal Connection Testing	1	2026	2	2027
Submarine Tethered Expendable Buoy (STEB) Internal Connection Transition	3	2027	3	2027
Next Generation Imaging/Electronic Warfare Sensor Development	1	2023	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy			Date: March 2024
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603562N / *Submarine Tactical Warfare Sys*	Project (Number/Name) 1739 / *Submarine Arctic W/F 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
1739: *Submarine Arctic W/F Development*	96.525	7.041	7.328	7.410	-	7.410	7.500	7.610	7.678	7.835	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Submarine Arctic Warfare Development Project is aligned to Commander, Undersea Warfighting Development Center (UWDC), Detachment Arctic Submarine Laboratory (ASL). This Project provides the U.S. Navy Submarine Force (SUBFOR) a cadre of trained Arctic Operation Specialists (AOS) and an inventory of unique Arctic sensors that are installed to optimize submarine safety during under-ice operations. AOS personnel assigned from ASL embark on submarines that deploy to the Arctic, cold water and iceberg regions, and marginal ice zones in northern latitudes of the Atlantic and Pacific Oceans, and are advisors to the Commanding Officer. ASL is a shore facility at Naval Base Point Loma with the infrastructure capable of supporting personnel and equipment to conduct the submarine Arctic Warfare Development mission. Improvements and life-cycle expenditures to the facility and warehousing are made as necessary to support the mission.

The Submarine Arctic Warfare Development Project, via ASL, responds to the increased threat of naval activity in the Arctic regions while continuously supporting the Navy's strategic objective of Assured Access and Combat Credibility. ASL provides a unique capability that enables the submarine force to satisfy the requirements laid out in the Arctic Maritime Homeland Defense Initial Capabilities Document (ICD). ASL and SUBFOR demonstrate existing Arctic Warfare capabilities and operational and tactical proficiency while developing advanced submarine technology in unique cold water environments, in under-ice conditions, and in ice-covered shallow water regions during a biennial Ice Exercise (ICEX). ICEX places an emphasis on submarine operability and mission capability in the world's harshest maritime environment. Efforts include assessment of combat system effectiveness, weapons testing, use of High Frequency (HF) sonars in Arctic regions, testing of ice-capable submarine structures, and development of class-specific Arctic operational guidelines. Tactical Development (TACDEV) ICEXs are conducted biennially and require up front comprehensive planning and work-up training, as well as post exercise analysis and reporting. ICEXs provide the framework for various submarine test and evaluation in Arctic regions and at periodic Ice Camps. This program represents DoD's only drifting ice station capability. Emphasis during ICEX is placed on the areas of sonar operability, tactical surveillance, weapon utility, and other submarine support missions. These efforts include the assessment of combat system effectiveness, development of Arctic specific improvements for existing sonar and weapons, development of class-specific Arctic operational guidelines, and testing of ice-capable submarine support structures. Torpedo ICEXs, occurring every four (4) years (FY 2026, FY 2030, etc.) include a Fleet requirement to conduct exercise torpedo (EXTORP) firings in the Arctic. A Torpedo Exercise (TORPEX) requires a significantly higher level of logistics, personnel, and infrastructure to account for the recovery and transportation efforts of the EXTORPs. The ICEX Program also includes Arctic Exercise (ARCEX), a biennial exercise that rotates with the biennial ICEX drifting ice camps, that includes Arctic operations to support ice camp equipment evaluation, systems development, extreme cold weather training, drifting sea ice analysis, and scientific research.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Conduct ICEX and Arctic Transit Mission, ICEX Workup and Training, Ice Camps	7.041	7.328	7.410	0.000	7.410
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
FY 2024 Plans: - Conduct Arctic work-up training. - Conduct ICEX 2024, with Ice Camp 2024, as a Tactical Development (TACDEV) event. Operate a submarine tracking range for approximately 14 days, conduct complex and coordinated operations from a drifting ice station. Logistically and operationally support submarine and camp operations from a drifting ice station via contracted commercial rotary and fixed-wing aviation services, via US Transportation Command (USTRANSCOM), from temporary infrastructure and services on the North Slope of Alaska. - Support Arctic deployments, including inter-Fleet transfers, as required by the SUBFOR Commanders. - Investigate, research, test, and deploy new systems for Arctic submarine support. - Support testing and tactical development required to improve submarine Arctic operability and warfighting. - Conduct Arctic operations to support ice camp equipment evaluation, systems development, and perform drifting sea ice analysis required for ice camp Arctic operations. ***FY 2025 Base Plans:*** - Conduct Arctic work-up training. - Support Arctic deployments, including inter-Fleet transfers, as required by the SUBFOR Commanders. - Investigate, research, develop, and deploy new systems for Arctic submarine support. - Conduct Arctic Exercise (ARCEX) 2025, a biennial exercise rotating with ICEX, and conduct Arctic operations to support ice camp equipment evaluation, systems development, extreme cold weather training, scientific research, and perform drifting sea ice analysis. - Support testing and tactical development required to improve submarine Arctic operability and warfighting. - Initiate planning, logistics support, procurement, and preparation for ICEX mission 2026 and Ice Camp 2026. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** - FY 2024 ($7.328M) to FY 2025 ($7.410M) increase ($+0.082M) is in line with the inflation expected with the RDT&EN appropriation.					
Accomplishments/Planned Programs Subtotals	7.041	7.328	7.410	0.000	7.410

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 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

- This project is a non-Acquisition Category (ACAT) program.
- Use Naval Undersea Warfare Centers (NUWC) to provide technical assistance awarded through NAVSEA Reimbursable Work Orders for submarine tracking, communications, and TORPEX capability at the drifting ice camp.
- Use sole source and competitively awarded contracts through the U.S. Army Corps of Engineers (USACE) Alaska regional office for ICEX and ARCEX logistics, engineering, and operations support.
- Use sole source and competitively awarded contracts through the Fleet Logistics Center (FLC) regional contracting office and Defense Logistics Agency (DLA) for equipment procurement and technical services.
- Use sole source and competitively awarded contracts through the U.S. Transportation Command (USTRANSCOM) for ICEX and ARCEX aviation support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

Test and Evaluation ($ 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
Operational Test & Evaluation (OT&E)	WR	COMSUBLANT : VA	22.181	3.641	Oct 2022	4.257	Nov 2023	3.940	Oct 2024	-		3.940	Continuing	Continuing	Continuing
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	COMSUBPAC : CA	36.101	0.000		0.000		0.000		-		0.000	0.000	36.101	-
Operational Test & Evaluation (OT&E)	WR	NUWC/Keyport : WA	1.941	0.225	Nov 2022	0.350	Dec 2023	0.234	Nov 2024	-		0.234	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	NUWC/Newport : RI	3.639	0.080	Nov 2022	0.100	Dec 2023	0.083	Nov 2024	-		0.083	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	USACE : AK	7.005	2.750	Nov 2022	0.000		2.861	Dec 2024	-		2.861	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	USTRANSCOM : IL	5.277	0.000		2.231	Nov 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	C/CPFF	UT/ARL : TX	1.444	0.000		0.000		0.000		-		0.000	0.000	1.444	Continuing
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	C/CPFF	UW/APL : WA	15.827	0.000		0.000		0.000		-		0.000	0.000	15.827	Continuing
Operational Test & Evaluation (OT&E)	C/CPFF	VAR* : VAR	0.339	0.000		0.000		0.062	Dec 2024	-		0.062	Continuing	Continuing	Continuing
		Subtotal	93.754	6.696		6.938		7.180		-		7.180	Continuing	Continuing	N/A

Remarks

* Consists of multiple performing activities with funding for each not greater than $1M per year

Management Services ($ 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
Program Management Support - Acquisition, Business & Finance	C/CPAF	EG&G : VA	0.311	0.000		0.000		0.000		-		0.000	0.000	0.311	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

Management Services ($ 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
Program Management Support - Acquisition, Business & Finance	C/CPAF	BAE SYSTEMS : MD	1.088	0.000		0.000		0.000		-		0.000	0.000	1.088	-
Program Management Support - Acquisition, Business & Finance	C/CPIF	TMB : DC	0.676	0.125	Dec 2022	0.130	Feb 2024	0.135	Dec 2024	-		0.135	Continuing	Continuing	Continuing
Program Management Support - Arctic Scientist	C/CPIF	KMS Solutions : VA	0.125	0.125	Dec 2022	0.000		0.000		-		0.000	0.000	0.250	-
Program Office Travel	Allot	NAVSEA PEO IWS 5 : DC	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	-
ICEX Event Travel*	Allot	NAVSEA PEO IWS 5 : DC	0.531	0.095	Oct 2022	0.260	Oct 2023	0.095	Oct 2024	-		0.095	Continuing	Continuing	Continuing
		Subtotal	2.771	0.345		0.390		0.230		-		0.230	Continuing	Continuing	N/A

Remarks

* ICEX Event Travel category reflects travel for the Arctic Submarine Lab personnel in support of ICEX, but is managed by NAVSEA PEO IWS 5 via the Defense Travel System (DTS) Cross-Organization process.

	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	96.525	7.041		7.328		7.410		-		7.410	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

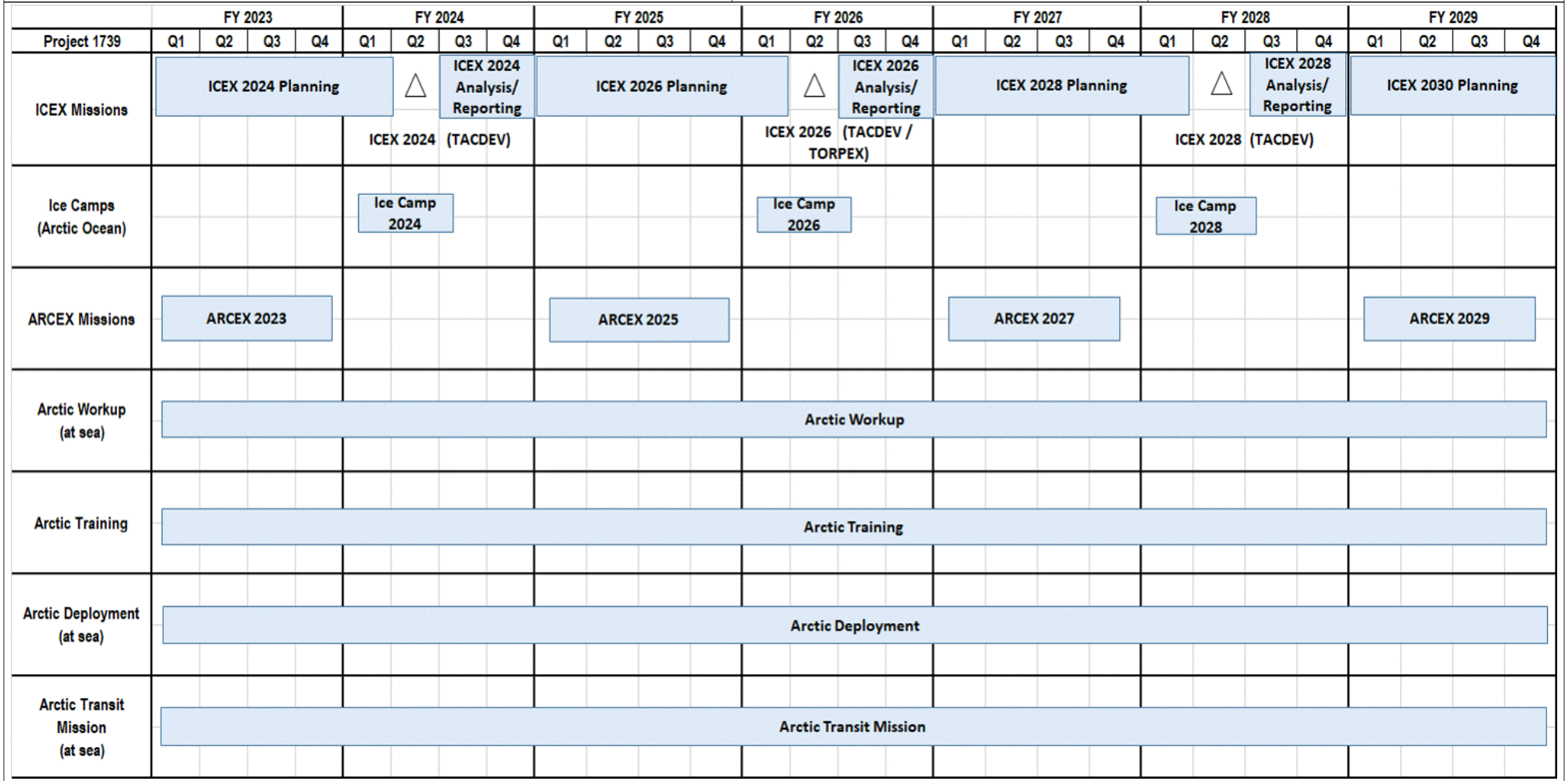

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1739				
ICEX Missions: ICEX Mission 2024 (TACDEV) Planning/Logistics	1	2023	1	2024
ICEX Missions: ICEX Mission 2024 (TACDEV)	2	2024	2	2024
ICEX Missions: ICEX Mission 2024 (TACDEV) Post-ICEX Analysis/Reporting	3	2024	4	2024
ICEX Missions: ICEX Mission 2026 (TACDEV / TORPEX) Planning/Logistics	1	2025	1	2026
ICEX Missions: ICEX Mission 2026 (TACDEV / TORPEX)	2	2026	2	2026
ICEX Missions: ICEX Mission 2026 (TACDEV / TORPEX) Post-ICEX Analysis/ Reporting	3	2026	4	2026
ICEX Missions: ICEX Mission 2028 (TACDEV) Planning/Logistics	1	2027	1	2028
ICEX Missions: ICEX Mission 2028 (TACDEV)	2	2028	2	2028
ICEX Missions: ICEX Mission 2028 (TACDEV) Post-ICEX Analysis/Reporting	3	2028	4	2028
ICEX Missions: ICEX Mission 2030 (TACDEV / TORPEX) Planning/Logistics	1	2029	4	2029
Ice Camps: Ice Camp (Arctic Ocean) 2024	1	2024	3	2024
Ice Camps: Ice Camp (Arctic Ocean) 2026	1	2026	3	2026
Ice Camps: Ice Camp (Arctic Ocean) 2028	1	2028	3	2028
ARCEX Missions: ARCEX 2023	1	2023	4	2023
ARCEX Missions: ARCEX 2025	1	2025	4	2025
ARCEX Missions: ARCEX 2027	1	2027	4	2027
ARCEX Missions: ARCEX 2029	1	2029	4	2029
Arctic Workup (At-Sea): Arctic Workup (At Sea)	1	2023	4	2029
Arctic Training: Arctic Training	1	2023	4	2029
Arctic Submarine Deployment as required by the Submarine Type Commander: Arctic Submarine Deployment as required by the Submarine Type Commander	1	2023	4	2029

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Arctic Transit Mission (At Sea): Arctic Transit Mission (At Sea)	1	2023	4	2029