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 0605512N *I MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*

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	111.274	83.548	85.800	101.838	-	101.838	103.181	102.268	99.688	101.624	Continuing	Continuing
3428: *Medium Unmanned Surface Vehicle (MUSV)*	111.274	83.548	85.800	101.838	-	101.838	103.181	102.268	99.688	101.624	Continuing	Continuing

Note

FY 2020 and prior funding in Program Element (PE) 0603502N. Medium Unmanned Surface Vehicle (MUSV) (Project 3428) realigned from PE 0603502N in FY 2021. For FY 2023, the Navy realigned funding to PE 0605512N for purchase and integration of the Unmanned Surface Vessel Integrated Combat System (USV ICS) aboard MUSV, reflecting the Navy's vision of eventually fielding the USV ICS across all unmanned surface platforms. USV ICS is required for MUSV platforms for command and control of sensors and payloads. The USV ICS will support data fusion, forwarding and integration with manned combatants and the force common operating picture.

A. Mission Description and Budget Item Justification

Projects under this Program Element provide resources for the unmanned platforms in the Navy's Future Surface Combatant Force (FSCF), Medium Unmanned Surface Vehicle (MUSV), Sea Hunter, and Seahawk. No Manning Required Ship (NOMARS) is also planned to transition from DARPA to PMS406 in FY 2025, which will be vital in the technology development and risk reduction efforts to support the MUSV PoR.

MUSV is defined as having a reconfigurable mission capability which is accomplished via modular payloads with an initial capability to support Battlespace Awareness through supporting Intelligence, Surveillance, Reconnaissance, and Targeting (ISR-&T), Counter-ISR&T, and Information Operations (IO) mission areas.

MUSVs provide affordable, high endurance, reconfigurable ships able to accommodate various payloads for unmanned missions and augment the Navy's manned surface force. MUSVs will be capable of autonomous operation, with operators' in-the-loop or on-the-loop, as required. USV Command and Control (C2) will be maintained via an afloat element (i.e., embarked on a United States Navy (USN) combatant/other assigned afloat asset) or via an ashore element (C2 station ashore).

While unmanned surface vehicles are new additions to fleet units, MUSV is intended to combine robust and proven commercial vessel specifications with existing military payloads to rapidly and affordably expand the capacity and capability of the surface fleet. The MUSV program leverages years of investment and full scale demonstration efforts in autonomy, endurance, command and control, payloads, and testing from the Defense Advanced Research Projects Agency (DARPA) Anti-Submarine Warfare Continuous Trail Unmanned Vessel (ACTUV), Office of Naval Research (ONR) Medium Displacement Unmanned Surface Vehicle (MDUSV)/Sea Hunter (FY 2017 to FY 2021), and Office of the Secretary of Defense Strategic Capabilities Office (OSD SCO) Ghost Fleet Overlord Large USV experimentation effort (FY 2018 to FY 2021). The combination of fleet-ready C2 solutions developed by the Ghost Fleet Overlord program and initial man-in-the-loop or man-on-the-loop control will reduce the risk of fleet integration of unmanned surface vehicles and allow autonomy and payload technologies to develop in parallel with fielding vehicles with standardized interfaces.

Small Unmanned Surface Vehicle (sUSV) Family of Systems is designed to meet an urgent Geographic Combatant Command Requirement leveraging technologies developed by MUSV. sUSV is an inexpensive Maritime capability leveraging the best of commercial technology and innovations at speed and scale.

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 0605512N *I MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	85.966	85.800	99.387	-	99.387
Current President's Budget	83.548	85.800	101.838	-	101.838
Total Adjustments	-2.418	0.000	2.451	-	2.451
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.418	0.000			
• Rate/Misc Adjustments	0.000	0.000	2.451	-	2.451

Change Summary Explanation

Program Change:
Technical: Not applicable
Schedule: Not applicable
Cost:
FY 2023: -$2.418M SBIR/STTR/FTT Assessment (SBIR)
FY 2024: No Change
FY 2025: $2.451M sUSV increase.

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*				Project (Number/Name) 3428 / *Medium Unmanned Surface Vehicle (MUSV)*			
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**
3428: *Medium Unmanned Surface Vehicle (MUSV)*	111.274	83.548	85.800	101.838	-	101.838	103.181	102.268	99.688	101.624	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

FY 2020 and prior funding in Program Element (PE) 0603502N. Medium Unmanned Surface Vehicle (MUSV) (Project 3428) realigned from PE 0603502N in FY 2021. For FY2023, the Navy realigned funding to PE 0605512N for purchase and integration of the Unmanned Surface Vessel Integrated Combat System (USV ICS) aboard MUSV, reflecting the Navy's vision of eventually fielding the USV ICS across all unmanned surface platforms.

A. Mission Description and Budget Item Justification

The Medium Unmanned Surface Vehicle (MUSV) is one of two Unmanned Surface Vessels in the Future Combatant Force (FSCF) program. The MUSV project provides resources for acquisition development, prototype testing, experimentation and support for the MUSV program development. The MUSV is defined as having a reconfigurable mission capability which is accomplished via modular payloads with an initial capability to support Battlespace Awareness through supporting Intelligence, Surveillance, Reconnaissance, and Targeting (ISR-&T), Counter-ISR&T (CISR&T), and Information Operations (IO) mission areas. Modular payloads may be developed separately by other programs or prototyping efforts and will be further developed and/or integrated into MUSV under the Unmanned Surface Vehicle Enabling Capabilities PE (0605513N) that supports MUSV and LUSV.

MUSVs will support the Navy's ability to produce, deploy and disburse ISR&T/C-ISR&T/IO capabilities in sufficient quantities and provide/improve distributed situational awareness in maritime Areas of Responsibility (AORs). MUSVs will be capable of weeks-long deployments and trans-oceanic transits and operate aggregated with Carrier Strike Groups (CSGs) and Surface Action Groups (SAGs), as well as have the ability to deploy independently. The MUSV will be a key enabler of the Navy's Distributed Maritime Operations (DMO) concept.

In FY 2020, the Navy conducted a full and open competition for a MUSV prototype, conducting source selection activities Q1-Q3 of FY20. In July 2020, the Navy awarded a Detail Design & Fabrication (DD&F) contract to L3 Harris for the delivery of the first MUSV prototype. L3 Harris is the system integrator, while also supplying the autonomy and perception systems. Subcontractors Gibbs & Cox and Incat Crowther will provide vessel design and modification services, while the vessel will be produced by Swiftships Shipyard. All work was planned to be performed in various sites along the Louisiana Gulf Coast. In FY23, the fabrication of the MUSV prototype was having quality issues. These issues eventually resulted in the Navy discussing alternative contract actions with Contracts and Legal due to the inability for L3H to provide the Navy the MUSV prototype. L3H and the Navy are still planning to complete the development of the MUSV autonomy software and install it onto a 406 owned prototype for program maturation.

MUSV Machinery Plant - Supports prime contractor detail design, machinery procurement, installation and integration, and test/demonstration support for USV Land Based Test Site (LBTS). LBTS is required to demonstrate unmanned operation of main propulsion and electrical generation/distribution at a minimum of threshold mission duration requirements prior to entering MS B as required by the FY21 NDAA.

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

MUSV LBTS provides engineering support for the detail design, procurement, installation and integration, test and demonstration plan development, and test and demonstration execution in support of MUSV program of record.

MUSV Prototypes and sustainment project provides resources for the operation and sustainment of MUSV prototypes.

The Sea Hunter and Seawhawk prototypes are experimentation vessels operated by the Navy's Surface Development Squadron, and are currently homeported in San Diego, CA. Seahawk was delivered to ONR and subsequently transferred ownership to PMS 406 Q3 FY21. No Manning Required Ship (NOMARS) is planned to transition from DARPA to PMS406 in FY26. This vessel will help feed the MUSV PoR and will provide risk reduction and technology maturation through testing of equipment and tactics. Through continued operations and demonstrations utilizing prototypes, the Navy continues to gain valuable insights and lessons learned in the utilization of unmanned systems and their associated payloads. This knowledge influences both Concept of Operation/Employment doctrine to guide fleet operations, as well as requirements documents for future USV systems.

USV prototypes will provide a means for demonstrating a payloads ability to operate in an autonomous manner with no engineering support for multi-day operations simulating a MUSV operational environment. USV Prototypes will inform PMS 406 on technologies for MUSV that demonstrate successfully the Navy's ability to produce, deploy and disburse ISR&T/C-ISR&T/IO capabilities in sufficient quantities and provide/improve distributed situational awareness in maritime Areas of Responsibility (AORs).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: MUSV Product Development	66.257	62.849	72.765	0.000	72.765
Articles:	-	-	-	-	-
FY 2024 Plans: In FY24, in preparation for the MUSV PoR, an Analysis of Alternatives will be conducted to determine detailed requirements for the MUSV program and feed the start of the development of the Capability Development Document and System Specification. The MUSV autonomy and perception software will be installed onto OUSV 3 in FY24 followed by the execution of autonomy trials. Autonomy trials with the MUSV autonomy software will provide valuable risk reduction and maturation of autonomy systems for the MUSV PoR. The ICS and payload hardware, purchased in FY23, will be incrementally delivered and prepared for integration aboard a USV prototype. Checkout and industrial testing will be conducted on the USV ICS hardware in support of shipboard integration. Additionally, software development for the integration of the MUSV payload and ICS with the shipboard autonomy and C4I system will continue in support of the Technology Readiness Assessments, and the planned Milestone review prior to the award of the MUSV PoR. Similar to FY23, the refinement of requirements and acquisition documentation will continue leading up to a planned Milestone review					

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
prior to the award of the MUSV PoR. Advanced reliability testing will continue at the MUSV LBTS to support the development of the System Specification for the MUSV PoR. Furthermore, in FY24, the C4I and autonomy systems for prototypes will be tested. In addition, in FY24, USV prototypes will support the operational tempo required by the Navy to execute multiple Fleet exercises and extended duration transits, which will enable the development of tactics, training, and procedures, as well as validate capabilities through experimentation. ***FY 2025 Base Plans:*** In FY25, the MUSV GFE, to include Integrated Warfare Systems (IWS) and Command, Control, Communication, Computers, and Intelligence (C4I) will be tested and maintained in laboratory environments. Development of these systems are vital to the maturation of technologies to support the MUSV POR. This effort will prepare the hardware and software in support of shipboard integration. Testing and technology maturation is required to mature Technology Readiness Levels in preparation for Milestone B. Payload integration is also a major effort in FY25 and will require software and hardware development with control systems to define required interfaces. Requirements development will continue to be conducted in FY25, which will feed various requirements documents and acquisition documents required for the MUSV POR. These documents consist of, but are not limited to, the Capability Development Document, Test and Evaluation Master Plan, Systems Engineering Plan, Life Cycle Sustainment Plan, and the Acquisition Strategy. The development of these documents is required to support the MUSV PoR and achieve Milestone B in FY2029. NOMARS, a DARPA project that PMS 406 intends to take over in FY26, will be used directly to feed technical maturity and design requirements for the MUSV PoR. This prototype will further mature technologies and concepts for the MUSV PoR. In addition to supporting the MUSV PoR, these prototypes are supporting Fleet operations, at a higher OPTEMPO than previously planned. These operations will support the development of training, tactics, procedures, and technical validation of technologies for the MUSV PoR. In FY 2025, the Small Unmanned Surface Vehicle (sUSV) program will finalize all Logistic documentation and complete training development, complete integration and testing with platform, command and control (C2) station, communications suite, and payload.					

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Logistics and Training development: Develop and deliver all logistics products and finalize the basis for training program. Finalize pre-positioning delivery timelines. Develop packaging, Handling, Storage and Transportation (PHS&T) requirement, finalize the develop of Tactics, Techniques, and Procedures (TTP) for the sUSV Family of Systems and provide chase craft and test support in support of Fleet TTP, Doctrine, Organization, Training Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF), and Concept of Employment (CONEMP) development. T&E: Finalize the development for sUSV Family of Systems test strategies. Provide direct liaison with the mission partner's USV experimentation plan to ensure test planning incorporated appropriate mission profiles. Conduct formal testing for Weapon Systems Weapon Systems Explosives Safety Review Board (WSESRB) certification. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Prototype USV Experimentation, CONOPS Development, Reliability Demonstration, and Underway Payload & Capability Demonstrations costs are increasing in FY 2025 due to Operations and Sustainment contract prices increasing, and the support required for preparations for a third prototype in support of MUSV development, NOMARS. In FY 2025, the sUSV Family of Systems will be transferred to PE 065512N to finalize all Logistic and training documentation, complete integration and testing with platform, C5I and payload to meet an urgent Geographic Combatant Command Requirement leveraging technologies developed by MUSV.					
Title: MUSV Support	11.923	17.460	21.465	0.000	21.465
Articles:	-	-	-	-	-
FY 2024 Plans: In FY24, for MUSV Support, execution of sustainment contracts for the prototypes will be accomplished. The sustainment contracts will directly support Fleet operations and exercises to further mature Concept of Operation/Employment for USVs and inform requirements definition of the MUSV PoR. Similar to FY23, the MUSV Program will continue to provide engineering and operational support for experimental payload integration and demonstration to support continued availability of the prototypes, during Fleet exercises. ***FY 2025 Base Plans:*** FY 2025 MUSV support efforts focus on the sustainment of prototype vessels that are equipped with CFE and GFE for maturation in support of the MUSV PoR and to support Fleet operations. Payload integration will be					

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
conducted in FY25 in order to validate operation and integration for the MUSV PoR, and reduce risk and mature Technology Readiness Levels (TRLs), which are required for Milestone B. Engineering and operational support are required for these efforts and will assist in risk reduction, documentation, and requirements development. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:*** In FY 2025, increases to these costs are driven by the operations and sustainment preperation of an additional prototype, NOMARS. Additional cost drivers are attributed to increased labor rates for support to include operational and engineering support for the prototype vessels.					
Title: MUSV Management	5.368	5.491	7.608	0.000	7.608
Articles:	-	-	-	-	-
FY 2024 Plans: Continue to provide management oversight of the DD&F contract for the delivery of the MUSV autonomy and perception software. Continue to provide management oversight and operations support of the USV prototypes. Continue drafting of MUSV Capabilities Development Document to capture warfighting requirements of future increment of MUSV. Commence an Analysis of Alternatives in order to feed requirements documents and achieve a Gate 2 event, in preparation for CDD development. Maintain compliance with DoDI 5000.80 via updating program documentation. Develop governing MUSV program acquisition and requirements documentation and supporting program developmental plans to prepare for a planned Milestone review prior to the award of the MUSV PoR. ***FY 2025 Base Plans:*** In FY 2025, MUSV Management efforts will focus on maturation of technology and risk reduction in preparation for the MUSV PoR. The maturation and testing of autonomy software will be conducted aboard prototype vessels in order to meet Senior Technical Authority Certification in accordance with the NDAA requirements. The prototypes will also be used for technology maturation and risk reduction for the program. MUSV program acquisition documents will be developed and refined to support the MUSV POR and meet the timeline of a FY 2029 ship award. ***FY 2025 OCO Plans:*** N/A ***FY 2024 to FY 2025 Increase/Decrease Statement:***					

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Increase in FY 2025 is due to the ramp up of engineering and logistics to support development of program documents toward an FY 2029 Milestone B.					
Accomplishments/Planned Programs Subtotals	83.548	85.800	101.838	0.000	101.838

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
• RDTE/0603178N/3066: *Large Unmanned Surface Vessel (LUSV)*	131.680	117.400	53.964	-	53.964	62.239	128.085	129.289	131.798	Continuing	Continuing
• RDTE/0605513N/3067: *Unmanned Surface Vehicle Enabling Capabilities*	159.628	176.261	92.868	-	92.868	99.468	190.591	190.940	194.646	Continuing	Continuing

Remarks

D. Acquisition Strategy

MUSV is designated as a Rapid Prototyping Program designation and follows a Middle Tier Acquisition approach per Section 804 of the Fiscal Year (FY) 2016 National Defense Authorization Act (NDAA), as amended in FY 2017 NDAA (codified at 10 U.S.C. sub sec 2302 note). Required capabilities were codified in a Top-Level Requirements (TLR) document approved by the OPNAV Director of Surface Warfare in FY 2019. Delivery of the MUSV autonomy software onto OUSV 3 is planned in FY2024 followed by Autonomy trials. The prototyping efforts with the FY 2019 MUSV hardware and software will inform decisions in preparation for the transition to an ACAT program. Formalized requirements will be defined through a Capability Development Document and procurement funding will be developed as part of a decision in future budgets. The USV prototypes, to include NOMARS, which will transition to PMS406 in FY26, will be used for technology maturation and risk reduction efforts in support of the MUSV PoR.

The MUSV LBTS will consist of one Main Propulsion Diesel Engine (MPDE) and one Ship Service Diesel Generator (SSDG) with all the necessary support and test equipment at a contractor facility in FY2023 and FY2024. The MUSV LBTS is scheduled to have an STA certified HM&E plant by FY2024. Post NDAA demonstration, the MUSV LBTS will be utilized to conduct additional reliability testing in support of MUSV.

The program is planning two separate projects, sUSV and sUSV NEXT. The program will award a Small Business Innovation Research (SBIR) contract modification in FY 2024, for research and development. The contract will provide development of technical data, fabrication, integration and testing of sUSV under authority (10 U.S.C. 4001). In support of sUSV NEXT, DIU will use Other Transaction (OT) authority (10 U.S.C. 4022) and executes a structured solicitation and competitive down-select process via Commercial Solutions Opening (CSO). Prototype OT awards planned for APR 2024; minimum viable product The sUSV contract, to support the timeline needed to scale up production to support the needs of the operational commanders.

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	Project (Number/Name) 3428 / *Medium Unmanned Surface Vehicle (MUSV)*	

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
System Engineering	WR	Various : Various	10.729	10.170	Jan 2023	10.652	Oct 2023	8.055	Oct 2024	-		8.055	Continuing	Continuing	Continuing
Vessel Construction and Integration	C/FPIF	L3 Harris : Melbourne, FL	6.450	3.000	Jan 2023	0.000	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Logistics Package Development	C/FPIF	L3 Harris : Melbourne, FL	2.188	1.100	Jan 2023	2.100	Oct 2023	0.000	Oct 2024	-		0.000	Continuing	Continuing	Continuing
C4I/PNT/IWS GFE Development/Integration	Various	Various : Various	12.200	10.903	Jan 2023	7.118	Oct 2023	16.625	Oct 2024	-		16.625	Continuing	Continuing	Continuing
Payload Development/ Integration	Various	Various : Various	6.550	10.200	Jan 2023	7.481	Oct 2023	2.000	Oct 2024	-		2.000	Continuing	Continuing	Continuing
LBES MUSV Machinery Plant	Various	Various : Various	14.000	0.000		0.000		0.000		-		0.000	14.000	28.000	-
LBTS - Land Based Engineering Test Site	Various	Various : Various	15.100	5.084	Oct 2022	5.500	Oct 2023	2.100	Oct 2024	-		2.100	Continuing	Continuing	Continuing
MUSV Integrated Combat System HW PUrchase and Integration	Various	Various : Various	0.000	8.000	Jan 2023	2.300	Oct 2023	0.000		-		0.000	Continuing	Continuing	Continuing
MUSV Integrated Combat System Testing	Various	Various : Various	0.000	0.000		4.500	Jan 2024	0.000		-		0.000	0.000	4.500	-
Sea Hunter/Seahawk Demonstration and Fleet Operations	Various	Various : Various	14.928	17.800	Oct 2022	23.198	Oct 2023	0.000		-		0.000	0.000	55.926	-
MUSV Testing and Fleet Operations	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Demonstration Planning	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Government Demonstration Support	WR	Various : Various	1.544	0.000		0.000		0.000		-		0.000	0.000	1.544	-
Cyber Security Testing	C/BA	Not Specified : Not Specified	4.600	0.000		0.000		0.000		-		0.000	0.000	4.600	-
Acquisition Documentation Development	WR	Various : Various	0.000	0.000		0.000		4.935	Oct 2024	-		4.935	0.000	4.935	-

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

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
Prototype USV Experimentation, CONOPS Development, Reliability Demonstration, Underway Payload & Capability Demonstrations	Various	Various : Various	0.000	0.000		0.000		25.800	Oct 2024	-		25.800	0.000	25.800	-
sUSV C5I Integration and Architecture	Various	Various : Various	0.000	0.000		0.000		1.600	Oct 2024	-		1.600	0.000	1.600	-
sUSV Hardware Development	SS/FFP	Maritime Applied Physics Corp : Curtis Bay, MD	0.000	0.000		0.000		11.650	Oct 2024	-		11.650	0.000	11.650	-
		Subtotal	88.289	66.257		62.849		72.765		-		72.765	Continuing	Continuing	N/A

Support ($ 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
Sea Hunter Support	Various	Various : Various	7.585	4.800	Jan 2023	8.730	Jan 2024	0.000		-		0.000	Continuing	Continuing	Continuing
Seahawk Support	Various	Various : Various	6.600	4.800	Jan 2023	8.730	Jan 2024	0.000		-		0.000	Continuing	Continuing	Continuing
Sea Hunter/Seahawk Milcomms Upgrade	Various	Various : Various	5.800	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MUSV 1 Support	TBD	TBD : TBD	0.000	2.323	Jan 2023	0.000		0.000		-		0.000	0.000	2.323	-
Prototype USV WFC Support	WR	Various : Various	0.000	0.000		0.000		20.215	Jan 2025	-		20.215	0.000	20.215	-
sUSV Logistics Support	C/BA	Varous : Various	0.000	0.000		0.000		1.250	Oct 2024	-		1.250	0.000	1.250	-
		Subtotal	19.985	11.923		17.460		21.465		-		21.465	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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

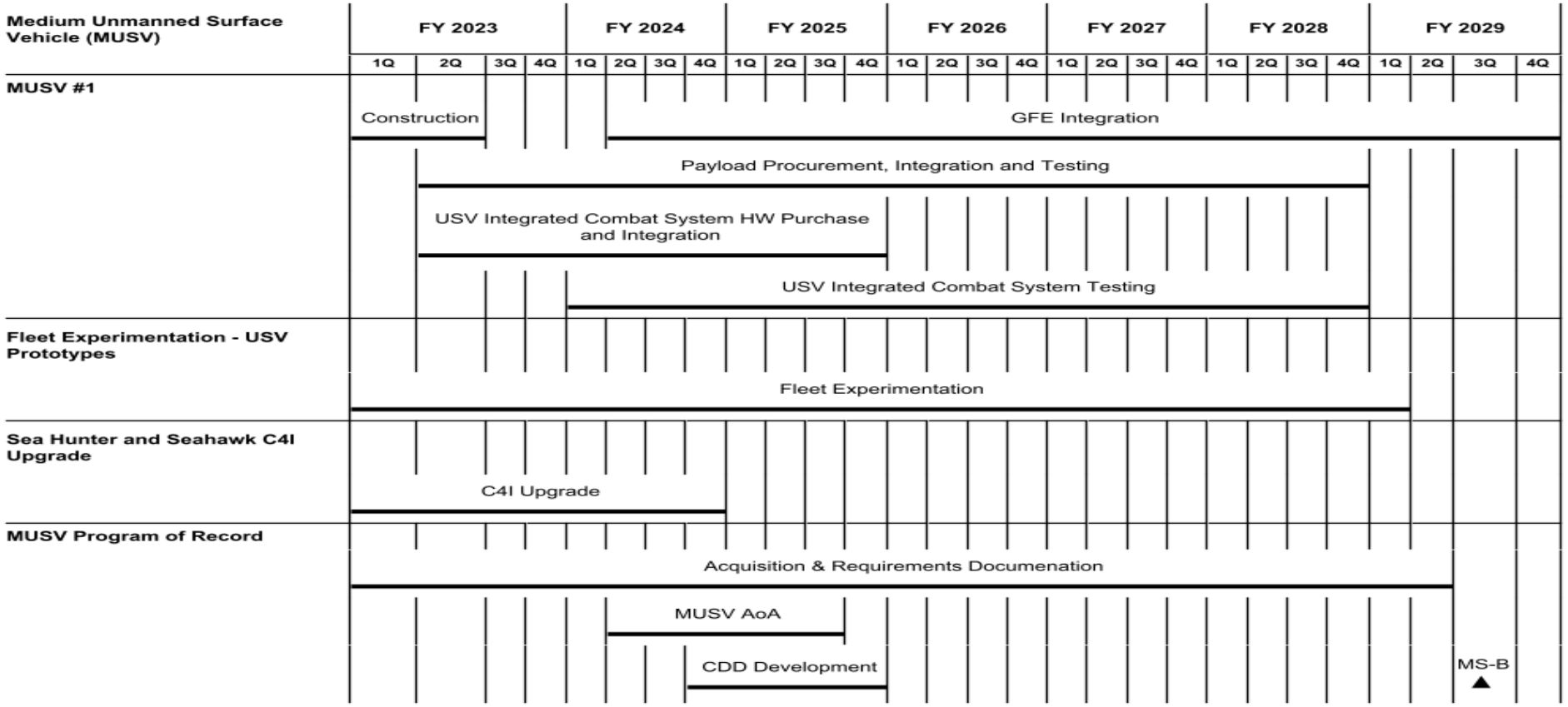
Management Services ($ in Millions)

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
Engineering/Logistics/ Warfare Center Support	WR	Various : Various	1.600	4.608	Oct 2022	4.700	Oct 2023	6.528	Oct 2024	-		6.528	Continuing	Continuing	Continuing
Acquisition Management	WR	Various : Various	1.400	0.760	Oct 2022	0.791	Oct 2023	0.830	Oct 2024	-		0.830	Continuing	Continuing	Continuing
Travel	WR	Various : Various	0.000	0.000		0.000		0.250	Oct 2024	-		0.250	0.000	0.250	-
		Subtotal	3.000	5.368		5.491		7.608		-		7.608	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	111.274	83.548		85.800		101.838		-		101.838	Continuing	Continuing	N/A

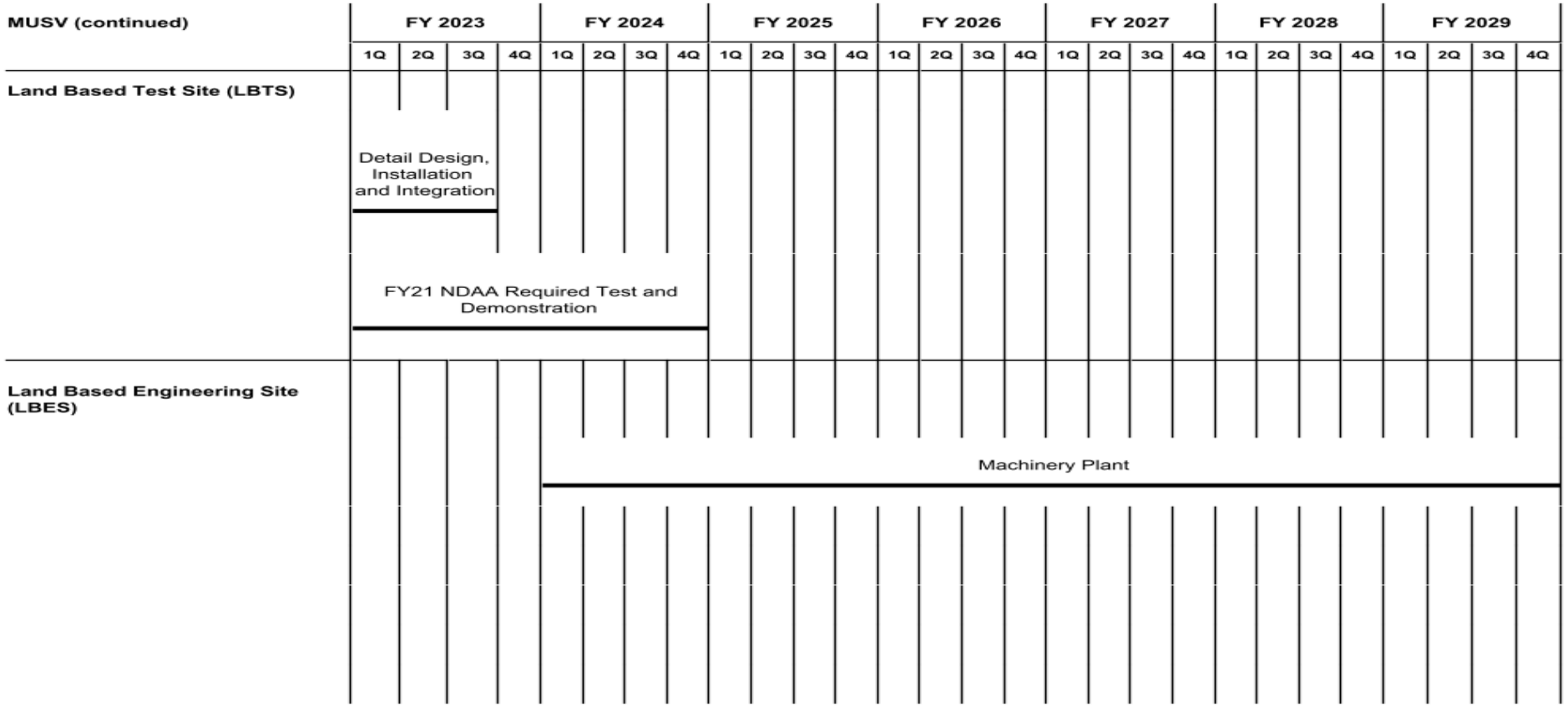
Remarks

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*



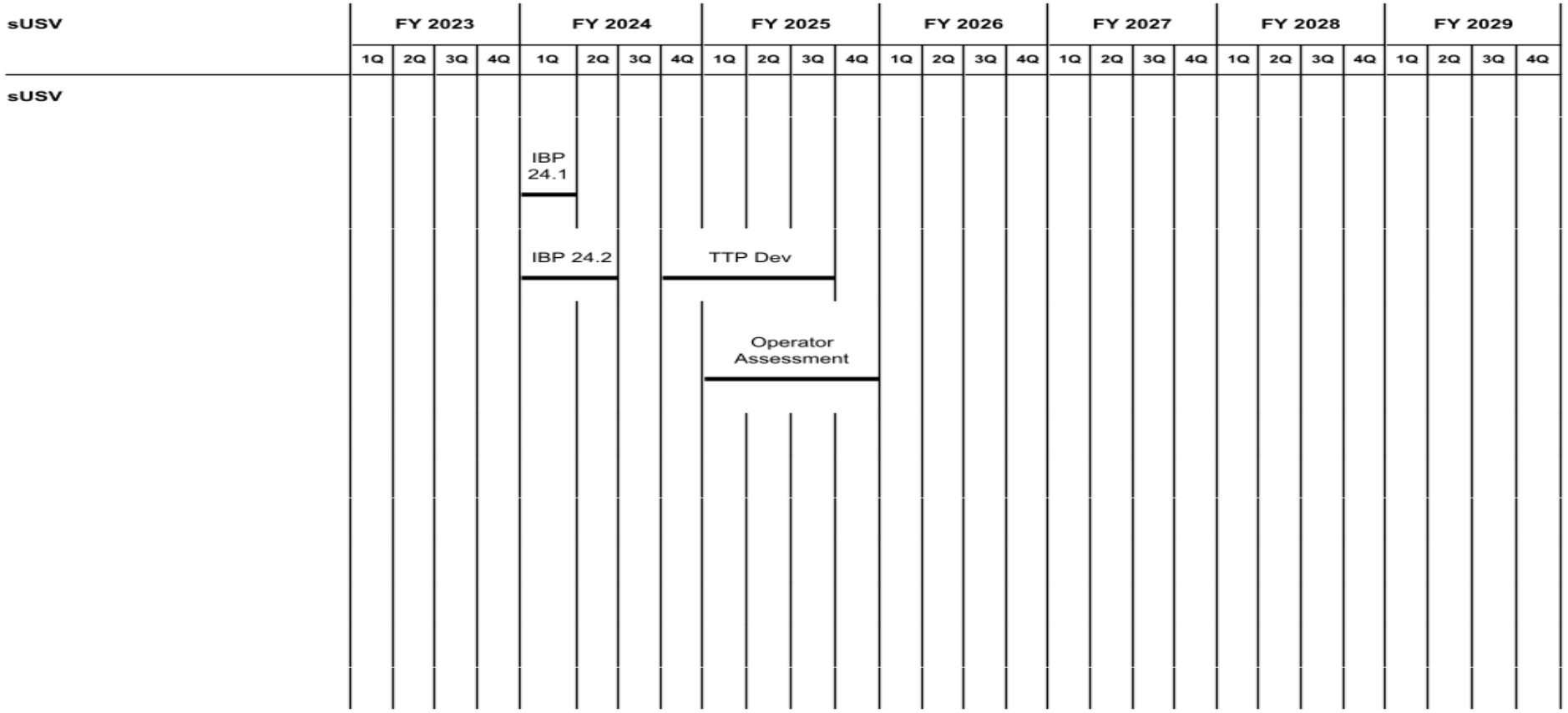
2025PB - 0605512N - 3428

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*



2025PB - 0605512N - 3428

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*



2025PB - 0605512N - 3428

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 0605512N / *MEDIUM UNMANNED SURFACE VEHICLES (MUSVs)*	**Project (Number/Name)** 3428 / *Medium Unmanned Surface Vehicle (MUSV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Medium Unmanned Surface Vehicle (MUSV)				
MUSV #1: Construction	1	2023	2	2023
MUSV #1: GFE Integration in Lab Environment	2	2024	4	2029
MUSV #1: Payload Purchase, Integration and Testing	2	2023	4	2028
MUSV #1: USV Integrated Combat System HW Purchase and Integration	2	2023	4	2025
MUSV #1: USV Integrated Combat System Testing	1	2024	4	2028
Fleet Experimentation - USV Prototypes: Fleet Experimentation - USV Prototypes	1	2023	1	2029
Sea Hunter and Seahawk C4I Upgrade: Sea Hunter and Seahawk C4I Upgrade	1	2023	4	2024
MUSV Program of Record: Program Acquisition and Requirements Documentation	1	2023	2	2029
MUSV Program of Record: MUSV Analysis of Alternatives	2	2024	3	2025
MUSV Program of Record: CDD Development	4	2024	4	2025
MUSV Program of Record: Milestone B	3	2029	3	2029
MUSV (continued)				
Land Based Test Site (LBTS): Detail Design, Installation and Integration	1	2023	3	2023
Land Based Test Site (LBTS): FY21 NDAA Required Test and Demonstration	1	2023	4	2024
Land Based Engineering Site (LBES): Machinery Plant	1	2024	4	2029
sUSV				
sUSV: Integrated Battle Problem (IBP) 24.1	1	2024	1	2024
sUSV: Integrated Battle Problem (IBP) 24.2	1	2024	2	2024
sUSV: Tactic, Techniques and Procedures (TTP) Development	4	2024	3	2025
sUSV: Forward Operational User Assessment	1	2025	4	2025