Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
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 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	53.402	57.872	85.966	85.800	-	85.800	99.387	98.268	99.761	101.768	Continuing	Continuing
3428: *Medium Unmanned Surface Vehicle (MUSV)*	53.402	57.872	85.966	85.800	-	85.800	99.387	98.268	99.761	101.768	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 FY23, 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.

Medium Unmanned Surface Vehicle (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 semi-autonomous operation, with operators' in-the-loop or on-the-loop. 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
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 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	60.020	104.000	93.809	-	93.809
Current President's Budget	57.872	85.966	85.800	-	85.800
Total Adjustments	-2.148	-18.034	-8.009	-	-8.009
• Congressional General Reductions	-	-0.477			
• Congressional Directed Reductions	-	-17.557			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.148	0.000			
• Program Adjustments	0.000	0.000	-8.500	-	-8.500
• Rate/Misc Adjustments	0.000	0.000	0.491	-	0.491

Change Summary Explanation

Program Change:
Technical: Not applicable
Schedule: Not applicable
Cost:
FY22: -$2.148M SBIR/STTR/FTT Assessment (SBIR)
FY23: -$17.557M Direct Congressional reduction, -$0.477 general Congressional reduction
FY24: -8.500M MUSV program realignment; +$0.491M Miscellaneous adjustments

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3428: *Medium Unmanned Surface Vehicle (MUSV)*	53.402	57.872	85.966	85.800	-	85.800	99.387	98.268	99.761	101.768	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) one of two Unmanned Surface Vessels in the Future Combatant Force (FSCF) program. The MUSV project provides resources for the detail design, fabrication, testing, experimentation and support of the MUSV. 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 announced they had awarded a Detail Design & Fabrication (DD&F) contract to L3 Harris for the delivery of the first MUSV prototype for $35M. The contract contains options for up to 8 additional MUSVs (9 total) for a total contract price of $281M. L3 Harris will be 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 will be performed in various sites along the Louisiana Gulf Coast.

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 2024 Navy		Date: March 2023
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 Land Based Test Site (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 LBTS.

The Sea Hunter and Seahawk Operations and sustainment project provides resources for the operation and sustainment of the Sea Hunter and Seahawk.

The Sea Hunter and Seahawk 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. Through continued operations and demonstrations utilizing these vessels, 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.

Sea Hunter and Seahawk 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. Sea Hunter and Seahawk 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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MUSV Product Development	41.772	68.675	64.601	0.000	64.601
Articles:	-	-	-	-	-
FY 2023 Plans: Execution of the MUSV DD&F contract will continue, with a focus on completion of construction of the vessel and executing an Over Target Schedule (OTS). The Government will continue to assess and direct the incorporation of any Engineering Change Proposals (ECPs) based on findings during the fabrication of the MUSV prototype in support of the MUSV Program of Record. These ECPs will include upgrading the MUSV prototype payload interfaces, autonomy behaviors, C4I interfaces, USV ICS interfaces, and maturation of Machinery Control System in support of the MUSV prototype certification, Technology Readiness Assessments, and the planned Milestone review prior to the award of the MUSV Program of Record (WBS 1.0, WBS 2.0, WBS 3.0, WBS 4.0 and WBS 5.0). The MUSV LBTS will have a STA certified HM&E plant by Q4 FY2023. Post NDAA demonstration, the MUSV LBTS will be utilized to conduct additional reliability testing in support of MUSV Acceptance Trials, Developmental/Operational Testing, and the MUSV Program of Record (POR).					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
In FY23, The Government will finalize the test plans for Dock Trials and Acceptance Trials followed by System Qualification Testing scheduled in FY2024. In FY2023, Sea Hunter and Seahawk 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 (WBS 6.0). The MUSV LBTS efforts in FY23 will be incorporated into the Performance Specification and captured in the MUSV Program of Record acquisition documents and associated artifacts (WBS 1.0). Furthermore, the MUSV program will continue the refinement of requirements and acquisition documentation including a Capability Development Document, SEP, TEMP, LCSP, Cybersecurity Strategy, Open Systems Architecture Management Plan, Quality Assurance Program Plan, Reliability and Maintainability Program Plan, Configuration Management Plan, Software Development Plan, NTSP and PPP, and all other artifacts leading up to a planned Milestone review prior to the award of the MUSV Program of Record. Purchase and integration of the prototype USV ICS hardware aboard the MUSV prototype as well as the purchase of a new payload are also planned in FY23 (WBS 3.0 and WBS 6.0) to support MUSV missions. This will be the first payload purchase for the MUSV prototype. Efforts in FY23 will also include maturation of the Sea Hunter and Seahawk autonomy and C4I systems to enable the full integration of the prototype platforms into the Fleet networks. ***FY 2024 Base Plans:*** In FY24, the MUSV prototype will transition from fabrication and integration to execution of Dock Trials in late Q2FY24 followed by the execution of Sea Trials in early Q3FY2024. System Qualification Testing for the MUSV prototype is scheduled for Q4FY2024 (WBS 6.0). In FY24, The Government will finalize the test plans for Developmental Testing (DT) and continue to mature the Master Test Strategy to define the requirements for Operational Testing (OT). Starting in Q1FY2025, the MUSV Program will transition from Contractor Testing (CT) to Government Developmental Testing (DT) to verify that vessel meets the MUSV TLRs (WBS 6.0). In FY24, The ICS and payload hardware, purchased in FY23, will be incrementally delivered and prepared for integration aboard the MUSV prototype (WBS 3.0 and WBS 6.0). 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 MUSV prototype certification, Technology Readiness Assessments, and the planned Milestone review prior to the award of the MUSV Program of Record (WBS 2.0, WBS 3.0, WBS 4.0, WBS 5.0, and WBS 6.0). Similar to FY23, the refinement of requirements and					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
acquisition documentation will continue leading up to a planned Milestone review prior to the award of the MUSV Program of Record. Advanced reliability testing will continue at the MUSV LBTS to support the development of Performance Specification for the MUSV Program of Record (WBS 1.0). Furthermore, in FY24, the upgraded C4I and autonomy systems for the Sea Hunter and Seahawk will be installed and tested (WBS 2.0). In addition, in FY24, Sea Hunter and Seahawk 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 (WBS 6.0). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $4.074 due to reduced systems engineering efforts for MUSV prototype post CDR as well as reduced hardware purchasing requirements for payload, ICS, and C4I systems for the MUSV prototype, Sea Hunter and Seahawk platforms.					
Title: MUSV Support	14.600	11.923	15.708	0.000	15.708
Articles:	-	-	-	-	-
FY 2023 Plans: Execution of sustainment contracts for Sea Hunter and Seahawk will continue in FY23 to support Fleet operations and exercises to further mature Concept of Operation/Employment for USVs and inform requirements definition of the MUSV Program of Record (WBS 6.0). Validation of capabilities through experimentation with the MUSV prototype, Sea Hunter and Seahawk will continue in FY23 to support requirements definition for MUSV Program of Record. The MUSV Program will continue to provide engineering and operational support for experimental payload integration and demonstration as well as Systems Engineering Support of any Engineering Change Proposals or Ship Alternations required to support continued availability of the Sea Hunter and Seahawk. ***FY 2024 Base Plans:*** In addition to executing sustainment contracts for Sea Hunter and Seahawk, FY24 efforts will also include executing support contracts to enable sustainment of the MUSV prototype, scheduled to be delivered in Q4FY24 for Acceptance Trials followed by System Qualification Testing. 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 Program of Record (WBS 6.0). Similar to FY23, the MUSV Program will					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
continue to provide engineering and operational support for experimental payload integration and demonstration to support continued availability of the Sea Hunter, Seahawk, and the MUSV prototype during Fleet exercises (WBS 6.0). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $3.785M due to increased operational availability of Sea Hunter and Seahawk as well as the addition of Dock Trials, Sea Trials, System Qualification Testing, and Planning for Developmental Testing for the MUSV prototype.					
Title: MUSV Management ***Articles:*** ***FY 2023 Plans:*** Continue to provide management oversight of DD&F contract including implementation of the MUSV certification plan. Continue to provide management oversight of the Sea Hunter and Seahawk C4I upgrades. Continue drafting of MUSV Capabilities Development Document to capture warfighting requirements of future increment of MUSV. 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 Program of Record. ***FY 2024 Base Plans:*** Continue to provide management oversight of DD&F contract including the formal delivery of the MUSV prototype to the Government and transition to Developmental Testing in Q3FY24. Continue to provide management oversight of the Sea Hunter and Seahawk C4I upgrades. Continue drafting of MUSV Capabilities Development Document to capture warfighting requirements of future increment of MUSV. 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 Program of Record. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***	1.500 -	5.368 -	5.491 -	0.000 -	5.491 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase of $.123M due to annual inflation of the labor rates.					
Accomplishments/Planned Programs Subtotals	57.872	85.966	85.800	0.000	85.800

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE/0603178N/3066: *Large Unmanned Surface Vessel (LUSV)*	98.871	136.580	117.400	-	117.400	127.855	127.006	129.431	131.729	Continuing	Continuing
• RDTE/0605513N/3067: *Unmanned Surface Vehicle Enabling Capabilities*	115.436	181.534	176.261	-	176.261	293.493	213.290	190.510	195.165	Continuing	Continuing

Remarks

D. Acquisition Strategy

MUSV has been 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. While there are no MUSV funded in the FY 2024-FY 2028 FYDP, the structure of the contract awarded to L3 Harris in July 2020 allows for options to be added should funding become available. Delivery of the initial prototype is planned in Q4 FY 2024 followed by Developmental and Operational Testing. The prototyping efforts with the FY 2019 MUSV will inform procurement of additional MUSV units and transition to an ACAT program with formalized requirements through a Capability Development Document and procurement funding as part of a decision in future budgets.

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. The MUSV LBTS will have a STA certified HM&E plant by Q4 FY2023. Post NDAA demonstration, the MUSV LBTS will be utilized to conduct additional reliability testing in support of MUSV Acceptance Trials, Developmental/Operational Testing, and the MUSV Program of record (POR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	WR	Various : Various	5.429	5.300	Jan 2022	10.170	Jan 2023	7.352	Oct 2023	-		7.352	Continuing	Continuing	Continuing
Vessel Construction and Integration	C/FPIF	L3 Harris : Melbourne, FL	2.950	3.500	Jan 2022	3.000	Jan 2023	3.000	Oct 2023	-		3.000	Continuing	Continuing	Continuing
Logistics Package Development	C/FPIF	L3 Harris : Melbourne, FL	2.188	0.000		1.100	Jan 2023	2.100	Oct 2023	-		2.100	Continuing	Continuing	Continuing
C4I/PNT GFE Development/Integration	Various	Various : Various	0.000	12.200	Jan 2022	10.903	Jan 2023	5.118	Oct 2023	-		5.118	Continuing	Continuing	Continuing
Payload Development/ Integration	Various	Various : Various	2.750	3.800	Jan 2022	10.200	Jan 2023	7.481	Oct 2023	-		7.481	Continuing	Continuing	Continuing
LBES MUSV Machinery Plant	Various	Various : Various	14.000	0.000		0.000		0.000		-		0.000	14.000	28.000	-
LBES - Land Based Engineering Test Site	Various	Various : Various	15.100	0.000		7.502	Oct 2022	5.500	Oct 2023	-		5.500	Continuing	Continuing	Continuing
MUSV Integrated Combat System HW PUrchase and Integration	Various	Various : Various	0.000	0.000		8.000	Jan 2023	2.300	Oct 2023	-		2.300	Continuing	Continuing	Continuing
MUSV Integrated Combat System Testing	Various	Various : Various	0.000	0.000		0.000		4.500	Jan 2024	-		4.500	0.000	4.500	-
Sea Hunter/Seahawk Demonstration and Fleet Operations	Various	Various : Various	2.000	12.928	Jan 2022	17.800	Oct 2022	20.198	Oct 2023	-		20.198	0.000	52.926	-
MUSV Testing and Fleet Operations	Various	Various : Various	0.000	0.000		0.000		7.052	Jan 2024	-		7.052	0.000	7.052	-
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	0.000	1.544	Jan 2022	0.000		0.000		-		0.000	0.000	1.544	-
Cyber Security Testing	C/BA	Not Specified : Not Specified	2.100	2.500	Jan 2022	0.000		0.000		-		0.000	0.000	4.600	-
		Subtotal	46.517	41.772		68.675		64.601		-		64.601	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sea Hunter Support	Various	Various : Various	3.185	4.400	Jan 2022	4.800	Jan 2023	6.204	Jan 2024	-		6.204	Continuing	Continuing	Continuing
Seahawk Support	Various	Various : Various	2.200	4.400	Oct 2021	4.800	Jan 2023	6.204	Jan 2024	-		6.204	Continuing	Continuing	Continuing
Sea Hunter/Seahawk Milcomms Upgrade	Various	Various : Various	0.000	5.800	Oct 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MUSV 1 Support	TBD	TBD : TBD	0.000	0.000		2.323	Jan 2023	3.300	Oct 2023	-		3.300	0.000	5.623	-
		Subtotal	5.385	14.600		11.923		15.708		-		15.708	Continuing	Continuing	N/A

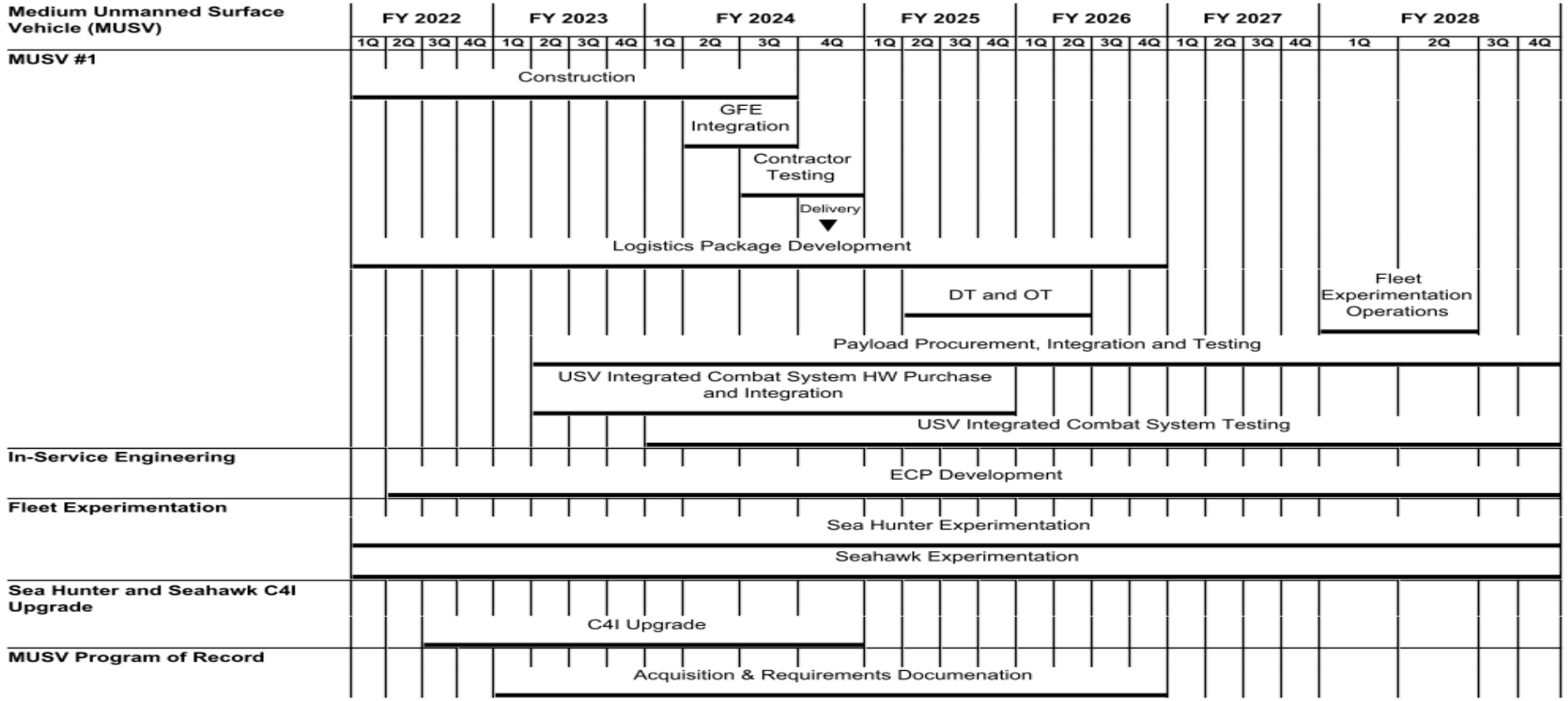
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirement Development	WR	Various : Various	0.800	0.800	Oct 2021	4.608	Oct 2022	4.700	Oct 2023	-		4.700	Continuing	Continuing	Continuing
Acquisition Management	WR	Various : Various	0.700	0.700	Oct 2021	0.760	Oct 2022	0.791	Oct 2023	-		0.791	Continuing	Continuing	Continuing
		Subtotal	1.500	1.500		5.368		5.491		-		5.491	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	53.402	57.872		85.966		85.800		-		85.800	Continuing	Continuing	N/A

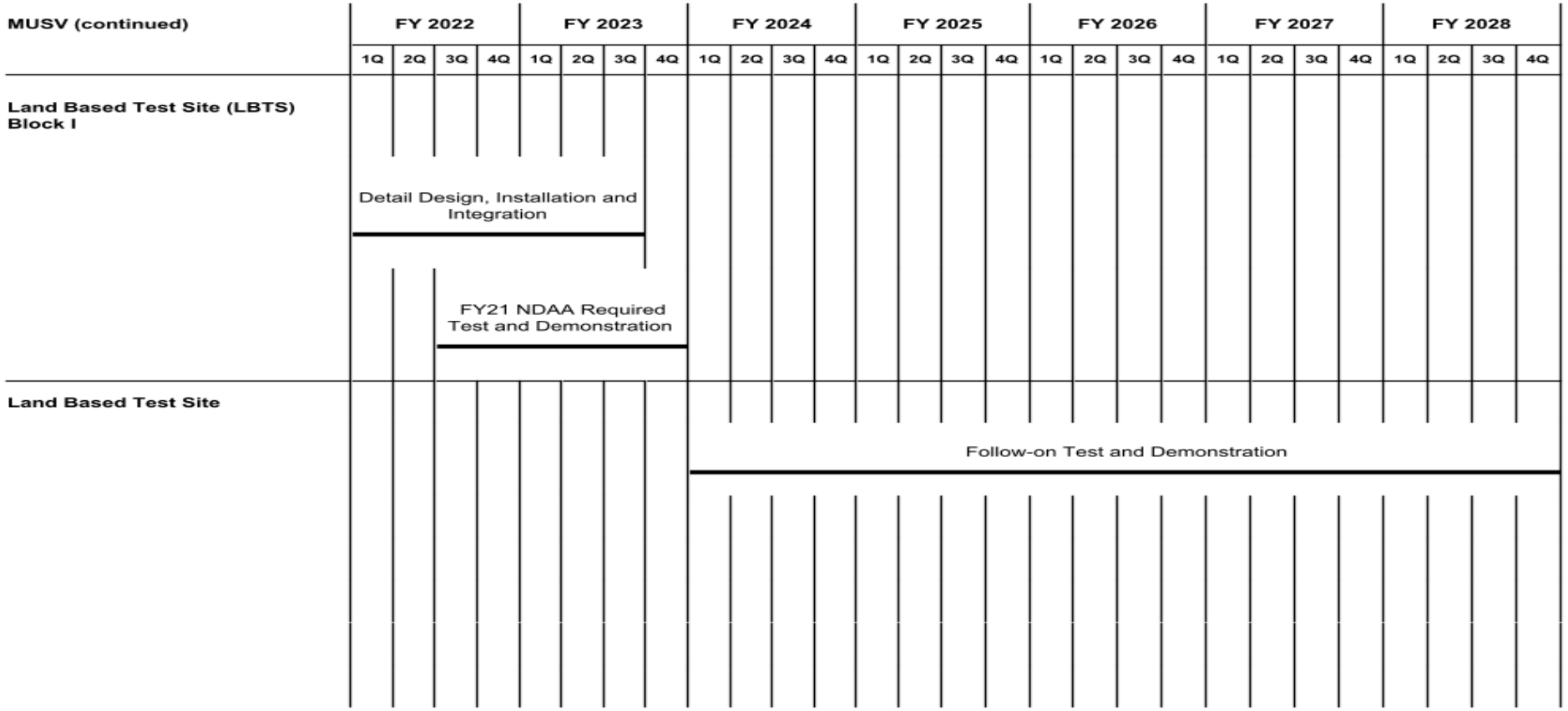
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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)*



2024PB - 0605512N - 3428

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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)*



2024PB - 0605512N - 3428

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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	2022	3	2024
MUSV #1: GFE Integration	2	2024	3	2024
MUSV #1: Contractor Testing	3	2024	4	2024
MUSV #1: Delivery	4	2024	4	2024
MUSV #1: Logistics Package Development	1	2022	4	2026
MUSV #1: Developmental and Operational Testing	2	2025	2	2026
MUSV #1: Fleet Experimentation Operations	1	2028	2	2028
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
In-Service Engineering: Engineering Change Proposal (ECP) Development	2	2022	4	2028
Fleet Experimentation: Sea Hunter Experimentation	1	2022	4	2028
Fleet Experimentation: Seahawk Experimentation	1	2022	4	2028
Sea Hunter and Seahawk C4I Upgrade: Sea Hunter and Seahawk C4I Upgrade	3	2022	4	2024
MUSV Program of Record: Program Acquisition and Requirements Documentation	1	2023	4	2026
MUSV (continued)				
Land Based Test Site (LBTS) Block I: Detail Design, Installation and Integration	1	2022	3	2023
Land Based Test Site (LBTS) Block I: FY21 NDAA Required Test and Demonstration	3	2022	4	2023
Land Based Test Site: Follow-on Test and Demonstration	1	2024	4	2028