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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	830.824	75.933	75.995	41.533	-	41.533	39.758	31.556	30.571	33.080	Continuing	Continuing
2550: <i>Mine Countermeasure (MCM) Mission Package</i>	79.285	26.449	49.989	12.963	-	12.963	16.551	15.295	18.421	11.509	Continuing	Continuing
2551: <i>Anti-Submarine Warfare (ASW) Mission Package</i>	79.876	23.154	17.268	14.826	-	14.826	11.175	5.001	0.000	0.000	0.000	151.300
2552: <i>Surface Warfare (SUW) Mission Package</i>	27.793	7.967	0.000	3.000	-	3.000	0.800	0.000	0.000	0.000	0.000	39.560
3129: <i>LCS Mission Package Development</i>	643.870	8.716	8.738	10.744	-	10.744	11.232	11.260	12.150	21.571	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	9.647	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.647

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 443

Note

The FY 2023 funding request was reduced by \$0.900 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Littoral Combat Ship (LCS) Mission Modules (MM) Program Element (PE) provides funds for detailed design, development, issue resolution, certification, integration, and testing of the LCS MM. LCS is a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and ensure naval and joint force access into contested littoral regions. It uses open-systems architecture design, modular weapons, sensor systems, and a variety of manned and unmanned vehicles to expand the battle space and project offensive power into the littorals.

The LCS MM Program employs an incremental development approach to deliver capability, which allows for insertion of mature capabilities throughout the life of the program without the need for modifications to the seaframes. Future capabilities will be considered when joint warfighting objectives or changing threats create new operational capability requirements that cannot be met by current mission package designs, or when new technological opportunities allow significant progress toward delivering cost effective, enhanced capabilities. Future mission module increments can be tested, constructed, and incorporated into existing mission packages, which is one of the most important benefits of LCS modular design.

Mission Package funding is aligned into four (4) projects:
2550 Mine Countermeasures (MCM) Mission Package
2551 Anti-Submarine Warfare (ASW) Mission Package

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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>
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2552 Surface Warfare (SUW) Mission Package
3129 LCS Mission Package Development

MCM MP: Counters bottom, tethered, near surface, and surface mines in the littorals without putting sailors in the minefield.

SUW MP: Increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving LCS the ability to protect the sea lanes while moving a force quickly through a choke point or other strategic waterway, and to conduct maritime security missions.

ASW MP: Enables the LCS to conduct detect-to-engage operations against modern submarines.

C5I: Enabling products required by all MPs such as common hardware interfaces, computer operating environment (Mission Package Computing Environment (MPCE)), communications systems (Multi-Vehicle Communications System (MVCS)), aviation interface systems, and Mission Package Portable Control Stations (MPPCS). MPCE provides common services and an Operating Environment to support all Mission Package Application Software (MPAS) and Open Architecture Products. MVCS enables the simultaneous control and data exchange between unmanned mission vehicles and the ship. Aviation interface systems include integration and management of data communications, data processing, and physical hardware interfaces such as common equipment and containers used by all mission packages. MPPCS provides a mobile operating environment installed in a 20ft ISO container and serves as a surrogate ship during mission package development and integration test events at test ranges.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	77.573	75.995	0.000	-	0.000
Current President's Budget	75.933	75.995	41.533	-	41.533
Total Adjustments	-1.640	0.000	41.533	-	41.533
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.640	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	41.533	-	41.533

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

	FY 2021	FY 2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *LCS Anti-Submarine Warfare Escort Mission Module Test Ship installation*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2021	FY 2022
	9.647	0.000
	9.647	0.000
	9.647	0.000

Change Summary Explanation

In FY 2023, the MCM MP will integrate and test Knifefish Block 1 on the Independence variant, conduct Cyber Security testing of the MCM MP, develop MCM MPAS 4.0 software, modify the MCM MP for integration of Barracuda, and commence development of the Near Surface Neutralization Module (NSN). In FY 2023, the ASW MP will continue performance testing of the DART PPTA with DT and Operational Assessment and validating the performance requirements. Following the completion of testing the LCS ASW MP will be divested in alignment with the decommissioning of eight LCS ships. In FY 2023, the SUW MP will conduct SSMM Shock Qualification Testing and initiate efforts to revise the SSMM hatch and cover design. In FY 2023, project 3129 (LCS Mission Package Common Development) efforts include continuing MPCE v2.0 tech refresh development and initiation of MVCS v1.X tech refresh development. In FY 2023, MCM MP will not conduct integration testing on the Freedom variant, instead MCM MP will support Knifefish LCS integration activities.

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules				Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2550: Mine Countermeasure (MCM) Mission Package	79.285	26.449	49.989	12.963	-	12.963	16.551	15.295	18.421	11.509	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 443												

A. Mission Description and Budget Item Justification

The MCM Mission Package (MP) employs an incremental development approach to deliver capability which allows the continued insertion of mature capabilities throughout the life of the program without the need for modifications to the seaframes. The focus is to minimize service life extensions to both MCM-1 ships and the MH-53E helicopters. Future MCM MP capabilities will be considered when joint warfighting objectives or changing threats create new operational capability requirements that cannot be met by current mission package designs, or when new technological opportunities allow significant progress toward delivering cost effective enhanced capabilities. Future mission module increments can be tested, constructed, and incorporated into existing mission packages, one of the most important benefits of LCS modular design.

The program has begun investigation into the feasibility of integrating the MCM MP on Vessels of Opportunity (VOO). In FY 2019 and FY 2020, the program demonstrated the flexibility of the modular MCM MP components by conducting a MCM Vessel of Opportunity (VOO) at-sea demonstration onboard the USS Hershel "Woody" Williams (T-ESB 4).

The MCM MP will counter deep, shallow, and tethered mines in the littorals without putting sailors in the minefield. When the MCM MP is embarked, LCS is capable of conducting detect-to-engage operations (hunting, sweeping, and neutralization) against very shallow to deep-water sea mine threats and detect mines in the Beach Zone. The MCM MP provides these capabilities through the use of sensors and weapons deployed from an MH-60S multi-mission helicopter, unmanned offboard vehicles, and support equipment/containers. The MCM MP consists of the following modules:

- Unmanned Minesweeping (UMS) Module: Unmanned Influence Sweeping System (UISS) (USV + Minesweeping Payload Delivery System (PDS))
- Airborne Mine Neutralization (AMN) Module: Airborne Mine Neutralization System (AMNS) + MH-60S helicopter
- Near Surface Detection (NSD) Module: Airborne Laser Mine Detection System (ALMDS) + MH-60S helicopter
- Coastal Mine Reconnaissance (CMR) Module: Coastal Battlefield Reconnaissance & Analysis (COBRA) + MQ-8 Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV)
- Buried Minehunting (BMH) Module: Knifefish Unmanned Undersea Vehicle (JUV)
- Remote Minehunting (RMH) Module: Unmanned Surface Vehicle (USV) + Minehunting PDS + AN/AQS-20 Minehunting Sonar
- Near-surface Mine Neutralization (NSN) Module: Barracuda (Barracuda Neutralizer + USV + Mine Neutralization PDS)

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Title: Mine Countermeasures (MCM) Mission Modules</p> <p align="right">Articles:</p> <p>FY 2022 Plans: MCM MP Product Development - Achieve MCM MP Initial Operational Capability (IOC) - Certify MCM MP for deployment on Independence variant - Combat systems integration and testing - Resolve and update MPAS Build 3.0 to incorporate all MCM MP test findings and certify MPAS Build 3.0 - Incorporate MPAS Build 3.0 into CMPT - Complete the integration of the Knifefish Support container into the MCM MP - Conduct Cyber Development, to include development and implementation of an IA patch strategy for MPAS and the Mission Package Operating Environment (MPOE) - Monitor Barracuda development efforts to ensure system development accounts for eventual integration into MCM MP</p> <p>MCM MP Test & Evaluation - Place and remove exercise mines in a minefield along with 24-hour monitoring of the mine field with an at-sea chase boat for the duration of testing - Conduct test analysis of all testing scenarios for Independence - Support MCM USV and AQS-20C DT/OT on Independence variant - Conduct end-to-end MCM MP DT, TECHEVAL, and IOT&E for fielding on Independence Variant - Certify MCM MP for fielding based on executed IOT&E</p> <p>MCM MP Support - Certify the LCS MCM MP Logistic products and training material, including technical manuals and provisioning documentation, in preparation for IOC of the MCM MP in FY 2022 - Continue development of the MCM MP training package from interim training to Navy schoolhouse supported training to support the establishment of Ready for Training (RFT)</p>	26.449	49.989	12.963	0.000	12.963
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
- Compile mission system and mission package reliability and Maintainability (RAM-C) data to support reliability engineering and prioritized initial spares list.					
FY 2023 Base Plans:					
- Integration of Common Control Station (CCS) into MCM MPAS Build 4.0. Deliver MPAS build 4.0					
- Support Barracuda mine neutralizer integration with MCM USV via a Mine Neutralization PDS and support Barracuda development efforts to ensure system development accounts for eventual integration into MCM MP					
- Commence development of Barracuda support container					
- Commence development of Near Surface Neutralization Module (NSN)					
- Commence integration efforts of Knifefish Block 1 with the MCM MP on Independence variant					
- Vessel of Opportunity Integration					
- EXMCM Integration					
- Certify BMH Module with Knifefish Block I, for deployment on Independence Variant					
- Continue development of the MCM MP training package from interim training to Navy schoolhouse supported training to support the establishment of Ready for Training (RFT)					
- Certify the LCS MCM MP Logistic products and training material, including technical manuals and provisioning documentation.					
- Deliver and install Knifefish PMA into LCS MPCE hardware					
FY 2023 OCO Plans:					
N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					
Decrease from FY 2022 to FY 2023 as the program is completing testing on Independence variant.					
Accomplishments/Planned Programs Subtotals	26.449	49.989	12.963	0.000	12.963

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

Line Item	FY 2021	FY 2022	FY 2023	FY 2023	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN 1600: LCS Common Mission Modules Equipment	36.323	63.501	57.313	-	57.313	56.850	44.104	37.100	32.131	570.221	1,445.804
• OPN 1601: LCS MCM Mission Modules	189.397	30.119	94.987	-	94.987	165.038	180.874	163.658	121.516	1,496.842	2,855.192

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) 2550 / <i>Mine Countermeasure (MCM) Mission Package</i>

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The LCS MM Acquisition Strategy employs an incremental procurement approach to allow for the rapid introduction of additional capabilities as system technology matures. This phased plan provides incremental fielding of capability as technology is matured, into the MCM MP until the full baseline capability defined in the Capability Development Document (CDD) is reached.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 4				PE 0603596N / LCS Mission Modules				2550 / Mine Countermeasure (MCM) Mission Package							
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCM MP	WR	NSWC PCD : Panama City, FL	33.091	4.480	Dec 2020	35.895	Oct 2021	9.901	Nov 2022	-		9.901	Continuing	Continuing	Continuing
MCM MP	Sub Allot	PMS 406 : Various	7.650	0.000		0.000		0.000		-		0.000	6.400	14.050	-
MCM MP	Sub Allot	PMS 495 : Various	1.000	0.000		0.000		0.000		-		0.000	2.400	3.400	-
MCM MP	WR	NSWC PHD : Port Hueneme, CA	9.571	0.000		0.000		1.154	Dec 2022	-		1.154	12.800	23.525	-
MCM MP	C/CPFF	Northrop Grumman : Bethpage, NY	13.300	4.047	Nov 2020	2.700	Oct 2021	0.800	Nov 2022	-		0.800	2.100	22.947	-
Subtotal			64.612	8.527		38.595		11.855		-		11.855	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCM MP Test Support	WR	NSWC PCD : Panama City, FL	13.772	12.993	Dec 2020	0.000		0.000		-		0.000	0.000	26.765	-
MCM MP Test Support	WR	NSWC PHD : Port Hueneme, CA	0.000	4.432	Jan 2021	10.572	Oct 2021	0.250	Oct 2022	-		0.250	0.000	15.254	-
Subtotal			13.772	17.425		10.572		0.250		-		0.250	0.000	42.019	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCM Program Management	C/CPFF	Booz Allen Hamilton : Washington, DC	0.901	0.497	Nov 2020	0.822	Oct 2021	0.858	Jan 2023	-		0.858	0.858	3.936	-
Subtotal			0.901	0.497		0.822		0.858		-		0.858	0.858	3.936	N/A

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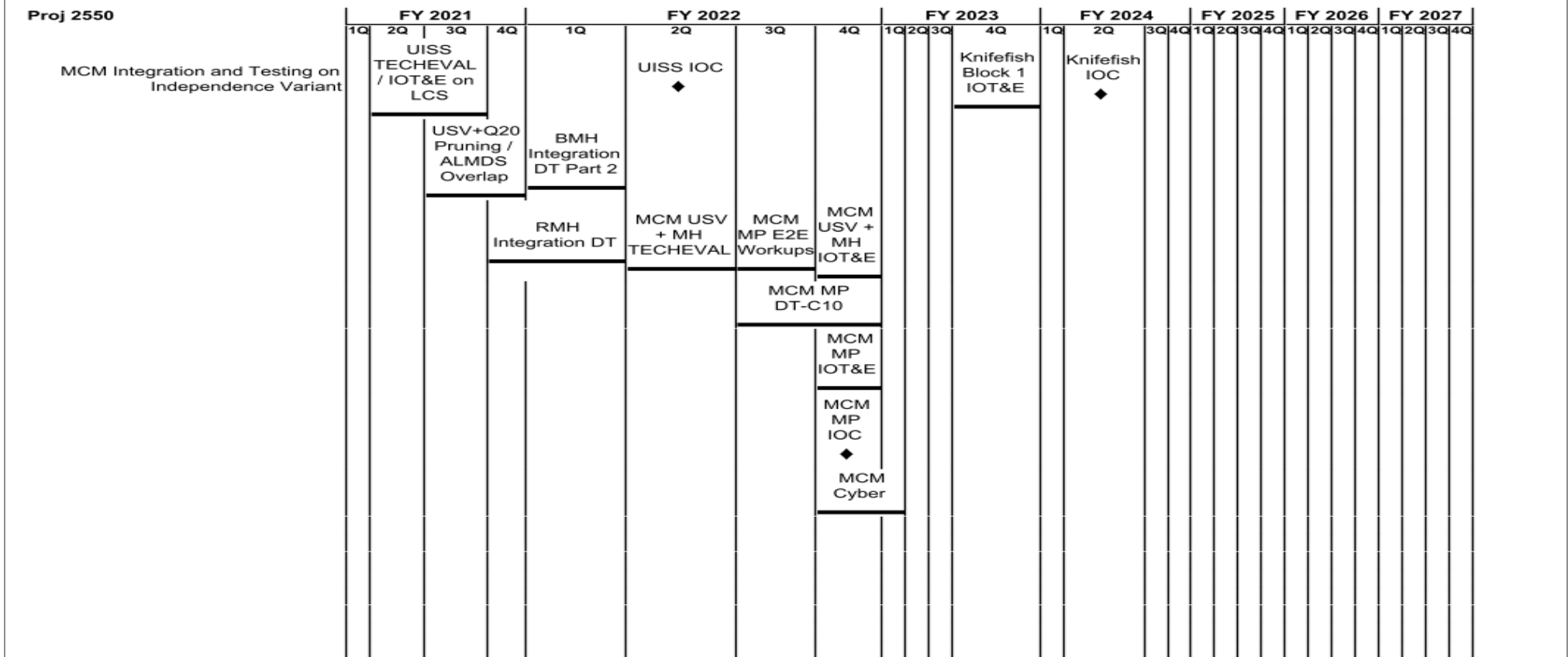
Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy								Date: April 2022					
Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules				Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package					
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.285	26.449		49.989		12.963		-		12.963	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package
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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy											Date: April 2022						
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules						Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package					

Page2	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Follow-on Efforts																																
									MPAS Find-Fix-Repair																							
									Barracuda Integration												NSN Testing											
																	NSN Integration															

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2550 / Mine Countermeasure (MCM) Mission Package

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2550				
MCM Integration and Testing on Independence Variant: UISS TECHEVAL / IOT&E (LCS-Based)	2	2021	3	2021
MCM Integration and Testing on Independence Variant: UISS IOC	2	2022	2	2022
MCM Integration and Testing on Independence Variant: Knifefish Block 1 IOT&E	4	2023	4	2023
MCM Integration and Testing on Independence Variant: Knifefish IOC	2	2024	2	2024
MCM Integration and Testing on Independence Variant: USV+Q20 Pruning & ALMDS Overlap Test (Shore-NSWC PC)	3	2021	4	2021
MCM Integration and Testing on Independence Variant: BMH MM/LCS Integration DT (DT-B10 Phase 2)	1	2022	1	2022
MCM Integration and Testing on Independence Variant: RMH MM/LCS Integration DT (DT-B10 Phase 3)	4	2021	1	2022
MCM Integration and Testing on Independence Variant: MCM USV + MH TECHEVAL	2	2022	2	2022
MCM Integration and Testing on Independence Variant: MCM USV + MH IOT&E	4	2022	4	2022
MCM Integration and Testing on Independence Variant: MCM MP End-to-End (E2E) Workups	3	2022	3	2022
MCM Integration and Testing on Independence Variant: DT-C10 TECHEVAL	3	2022	4	2022
MCM Integration and Testing on Independence Variant: OT-C10 IOT&E	4	2022	4	2022
MCM Integration and Testing on Independence Variant: MCM MP IOC on Independence Variant	4	2022	4	2022
MCM Integration and Testing on Independence Variant: MCM Cyber Security Testing	4	2022	1	2023
Page2				
Follow-on Efforts: MPAS Find-Fix-Repair	1	2023	4	2026
Follow-on Efforts: Barracuda Integration	1	2023	1	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) 2550 / <i>Mine Countermeasure (MCM) Mission Package</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Follow-on Efforts: Near Surface Neutralization (NSN) Module Testing	4	2025	1	2026
Follow-on Efforts: Near Surface Neutralization (NSN) Module Integration	4	2024	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2551 / Anti-Submarine Warfare (ASW) Mission Package
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2551: <i>Anti-Submarine Warfare (ASW) Mission Package</i>	79.876	23.154	17.268	14.826	-	14.826	11.175	5.001	0.000	0.000	0.000	151.300
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 443

A. Mission Description and Budget Item Justification

The ASW MP enables LCS to conduct detect-to-engage operations against submarines. Specific ASW capabilities include protecting forces in transit, protecting joint operating areas, and establishing ASW barriers. The ASW MP provides the warfighter capabilities that can be employed for ASW area search as well as high value unit escort missions. Key components of the ASW MP include a Variable Depth Sonar, a Multi-Function Towed Array and sonar signal processing systems. The individual systems are combined into modules: an ASW Escort Mission Module (EMM) that provides High Value Unit (HVU) escort capability and an Aviation Module that offers airborne threat localization and engagement capability through a MH-60R with MK54 torpedoes.

This project delivered the ASW EMM Pre-Production Test Article (PPTA) and the Aviation Module in Q1 FY 2019. Following the delivery of the PPTA, the ASW MP was installed on board a Freedom variant hull in Q4 FY 2019 to support Developmental Testing (DT). The project conducted DT on USS Fort Worth (LCS 3) in FY 2020 and FY 2021. In FY 2021, design updates were incorporated to improve reliability and hydrodynamic performance in turns and at higher speeds. Testing at the end of FY21 indicated hydrodynamic and transducer issues had not be resolved.

In FY 2022, the program continued hydrodynamic maturation efforts for the PPTA through land-based test events held at the Large Cavitation Channel (LCC) and implementation of an active control solution. Testing at Seneca Lake to show improved transducer reliability was also conducted. The program plans additional transducer testing at Seneca Lake and multiple underways on LCS 3 to ensure active control changes to the PPTA improve hydrodynamic stability and support validation of ASW performance requirements. The Program is also planning and supporting a NATO exercise to conduct ASW operations with an Unmanned Surface Vehicle paired with an alternative ASW payload.

In FY 2023, the LCS ASW MP will be divested in alignment with the decommissioning of eight (8) LCS ships. FY 2023 events will occur simultaneously with divestment of the LCS ASW MP. Divestment actions will include continuing performance testing of the DART PPTA with DT and an Operational Assessment validating the ASW performance requirements and the certification of all logistics products delivered in FY23. The Program will conduct foreign comparative testing of ASW capabilities and continue supporting technology demonstrations with unmanned surface vehicles paired with ASW payloads. Also conduct modeling, simulation, analysis, of a Variable Depth Sonar (VDS) in support of the ASW MP and as part of risk reduction efforts for the FFG-62 program.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Anti-Submarine Warfare (ASW) Mission Modules	23.154	17.268	14.826	0.000	14.826

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2551 / Anti-Submarine Warfare (ASW) Mission Package

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Articles:	-	-	-	-	-
<p><i>FY 2022 Plans:</i> MATURED THE ASW MP TECHNOLOGY -Determined proper PPTA array shape through land-based test events held at LCC -Implemented Active Roll Controls to address instability issues of PPTA -Continued transducer testing at Lake Seneca to correct acoustic performance deficiencies -Conducted hydro underways on LCS 3 to evaluate PPTA performance</p> <p>ACB-19 SOFTWARE WITH TI-20 HARDWARE (ACB 20.19L) - Participate in IWS 5.0 led Advanced Capability Build (ACB) software development process to maintain ASW MP alignment with Navy's common sonar signal processing software - Continue development of Escort Mission Module (EMM) ACB 20.19L Sonar Signal Processing System (SSPS) Baseline - Continue Software Qualification Testing (SQT) and certification of ACB 20.19L Sonar Signal Processing System (SSPS) Baseline - Continue integration and testing of ACB 20.19L Sonar Signal Processing System (SSPS) Baseline against FRE Variant combat system (CS)</p> <p>TRAINING - Continue the development of ASW MP operator training materials and course curriculum to support Train to Qualify (T2Q) and Train to Certify (T2C) requirements for LCS and in support of overall Navy training for DART VDS. - Continue development of component and system level modeling and simulation capabilities to enable high fidelity virtual reality training - In support of upcoming key test events, continue coordination of vendor training to ensure Sailors are receiving adequate ASW MP operation and maintenance training until formal Navy training is fully established</p> <p>MODELING - Update acoustic system performance models based on testing of the production ECPs</p> <p>USV ASW PAYLOAD DEMO - Initiate planning and analysis for ASW payloads with USV.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2551 / Anti-Submarine Warfare (ASW) Mission Package

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
- Conduct technology demo using USV with ASW payload.					
FY 2023 Base Plans: CONDUCT TESTING ON FREEDOM (FRE) VARIANT - Continue developmental progress through DT and OA, leading to system improvement implementations and maturing ASW MP Technology - Conduct modeling, simulation, analysis, of a Variable Depth Sonar (VDS) in support of the ASW MP as part of risk reduction efforts for the FFG-62 program. USV ASW PAYLOAD DEMO - Continue planning, analysis and conducting technology demos with USV and ASW FCT/alternate payloads ILS PRODUCT DEVELOPMENT - Certify provision technical documentation in support of the production hardware configuration					
ASW MP DIVESTMENT - Start actions in support of divesting the ASW MP					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Decrease of \$2.825M from FY 2022 to FY 2023. The program continues to mature VDS capabilities through test.					
Accomplishments/Planned Programs Subtotals	23.154	17.268	14.826	0.000	14.826

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN 1600: LCS Common Mission Modules Equipment	36.323	63.501	57.313	-	57.313	56.850	44.104	37.100	32.131	570.221	1,445.804
• OPN 1602: LCS ASW Mission Modules	38.359	1.565	3.594	-	3.594	6.926	0.000	0.000	0.000	15.345	90.406

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) 2551 / <i>Anti-Submarine Warfare (ASW) Mission Package</i>

D. Acquisition Strategy

The LCS MM Acquisition Strategy is employing an incremental procurement approach to allow for the rapid introduction of additional capabilities as system technology matures. This phased plan provides incremental fielding of capability through the introduction of mature programs of record into the respective Mission Packages until the full baseline capability defined in the Capability Development Document (CDD) is reached.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2551 / Anti-Submarine Warfare (ASW) Mission Package
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
2.0 ASW MP	Various	PEO IWS 5E : Various	1.500	0.150	Jan 2021	0.000		0.000		-		0.000	0.000	1.650	-
2.0 ASW MP	WR	NUWC NPT : Newport RI	3.980	1.800	Nov 2020	3.150	Nov 2021	3.393	Nov 2022	-		3.393	0.000	12.323	-
2.0 ASW MP	WR	NIWC : San Diego, CA	0.750	0.250	Jan 2021	0.000		0.000		-		0.000	0.000	1.000	-
2.0 ASW MP	C/CPFF	Northrop Grumman : Bethpage, NY	2.800	1.500	Dec 2020	0.000		0.000		-		0.000	0.000	4.300	-
2.0 ASW MP	Sub Allot	PEO IWS 5A : Various	26.000	12.657	Mar 2021	6.083	Mar 2022	2.500	Mar 2023	-		2.500	0.000	47.240	-
2.0 ASW MP	C/CPFF	CACI : Washington, DC	0.255	0.000		0.000		0.000		-		0.000	0.000	0.255	-
2.0 ASW MP	WR	NSWC DD : Dahlgren, VA	0.225	0.000		0.000		0.000		-		0.000	0.000	0.225	-
2.0 ASW MP	WR	SUPSHIP Bath : Bath, Me	3.421	0.000		0.000		0.000		-		0.000	0.000	3.421	-
2.0 ASW MP	MIPR	NAWC WD : Point Mugu, CA	0.410	0.000		0.000		0.000		-		0.000	0.000	0.410	-
2.0 ASW MP	C/FFP	Raytheon : Portsmouth, RI	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
2.0 ASW MP	C/CPFF	Huntington Ingalls Industry : Pascagoula MS	0.000	2.200	Jan 2021	0.000		0.000		-		0.000	0.000	2.200	-
Subtotal			39.341	18.557		9.233		5.893		-		5.893	0.000	73.024	N/A

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
2.0 ASW MP	WR	NUWC KPT : Keyport, Wa	1.300	0.850	Dec 2020	1.050	Dec 2021	0.453	Dec 2022	-		0.453	0.000	3.653	-
Subtotal			1.300	0.850		1.050		0.453		-		0.453	0.000	3.653	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2551 / Anti-Submarine Warfare (ASW) Mission Package
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Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
2.0 ASW MP Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	1.100	0.200	Nov 2020	0.600	Nov 2021	0.300	Dec 2022	-		0.300	0.000	2.200	-
2.0 ASW MP Test and Evaluation	WR	NSWC PHD : Port Hueneme, Ca	7.496	0.300	Dec 2020	1.500	Dec 2021	2.383	Nov 2022	-		2.383	0.000	11.679	-
2.0 ASW MP Test and Evaluation	WR	Range Service : Var*	7.454	0.000		0.000		0.000		-		0.000	0.000	7.454	-
2.0 ASW MP Test and Evaluation	WR	NUWC NPT : Newport, RI	14.134	0.800	Nov 2020	0.850	Nov 2021	1.800	Jan 2023	-		1.800	0.000	17.584	-
2.0 ASW MP Test and Evaluation	WR	NUWC KPT : Keyport, Wa	5.100	0.000		0.000		0.000		-		0.000	0.000	5.100	-
2.0 ASW MP Test and Evaluation	C/CPFF	Raytheon : Portsmouth, RI	2.800	0.500	Dec 2020	1.888	Dec 2021	1.850	Jan 2023	-		1.850	0.000	7.038	-
2.0 ASW MP Test and Evaluation	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	1.300	Dec 2020	1.500	Dec 2021	1.500	Dec 2022	-		1.500	0.000	4.300	-
Subtotal			38.084	3.100		6.338		7.833		-		7.833	0.000	55.355	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
2.0 ASW MP	C/CPIF	Booz Allen Hamilton : Washington, DC	1.151	0.647	Jan 2021	0.647	Jan 2022	0.647	Jan 2023	-		0.647	0.000	3.092	-
Subtotal			1.151	0.647		0.647		0.647		-		0.647	0.000	3.092	N/A

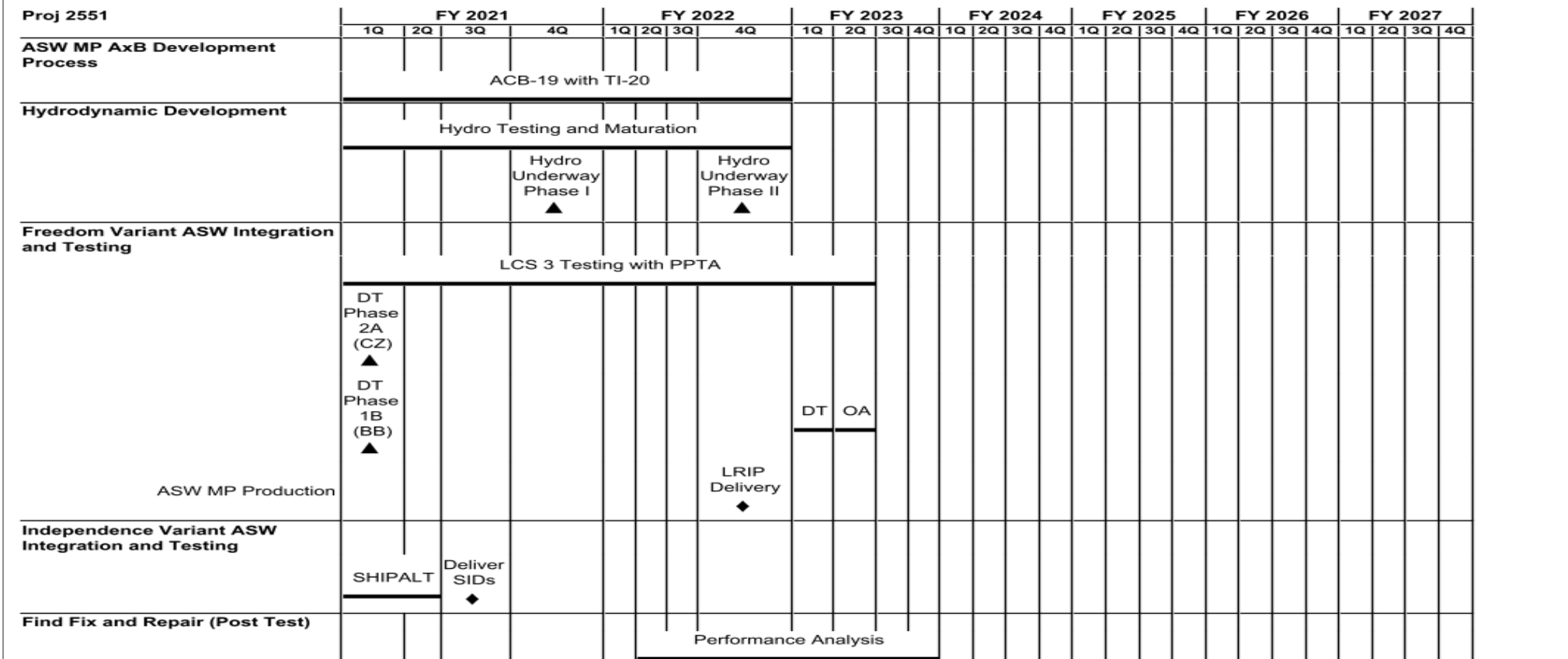
Project Cost Totals	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
	79.876	23.154	17.268	14.826	-	14.826	0.000	135.124	N/A

Remarks
FY 2018 and prior funding in Project 3129.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2551 / Anti-Submarine Warfare (ASW) Mission Package
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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) <i>2551 / Anti-Submarine Warfare (ASW) Mission Package</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2551				
ASW MP AxB Development Process: ACB-19 with TI-20	1	2021	4	2022
Hydrodynamic Development: Hydro Testing and Maturation	1	2021	4	2022
Hydrodynamic Development: Hydro Underway Phase I	4	2021	4	2021
Hydrodynamic Development: Hydro Underway Phase II	4	2022	4	2022
Freedom Variant ASW Integration and Testing: LCS 3 Testing with Pre-Production Test Article	1	2021	2	2023
Freedom Variant ASW Integration and Testing: ASW MP DT-B3 Phase 2A	1	2021	1	2021
Freedom Variant ASW Integration and Testing: ASW MP DT-B3 Phase 1B	1	2021	1	2021
Freedom Variant ASW Integration and Testing: ASW MP Developmental Testing	1	2023	1	2023
Freedom Variant ASW Integration and Testing: ASW MP Operational Assessment	2	2023	2	2023
Freedom Variant ASW Integration and Testing: ASW MP Production: Production Unit (LRIP) Delivery	4	2022	4	2022
Independence Variant ASW Integration and Testing: SHIPALT Design Development	1	2021	2	2021
Independence Variant ASW Integration and Testing: Deliver Ship Interface Documents (SIDs) & Specifications	3	2021	3	2021
Find Fix and Repair (Post Test): Analyze performance vs requirements	2	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules				Project (Number/Name) 2552 / Surface Warfare (SUW) Mission Package			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2552: Surface Warfare (SUW) Mission Package	27.793	7.967	0.000	3.000	-	3.000	0.800	0.000	0.000	0.000	0.000	39.560
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 443												

A. Mission Description and Budget Item Justification

The SUW MP increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving LCS the ability to protect the sea lanes and move a force quickly through a choke point or other strategic waterway. The SUW MP is composed of several mission modules including the Gun Mission Module (GMM), the Aviation Module, the Maritime Security Module (MSM), and the Surface-to-Surface Missile Module (SSMM). The GMM is composed of two high velocity 30mm cannons which is augmented by the ship's resident 57mm gun to counter close in to mid-range threats. The Aviation Module uses the embarked MH-60R helicopter with Hellfire missile and the MQ-8B Fire Scout VTUAV for the detection, identification, and classification of surface contacts and to engage long range threats. The MSM supports the embarkation of a Visit, Board, Search, and Seizure (VBSS) team. The SSMM is a self-contained module consisting of 2 Missile Exhaust Containment Structures (MECS), integrated articulating hatch covers, a fire control system, and 12 two-rail MK 210 launchers to support load out and firing of 24 Longbow Hellfire missiles. SSMM provides missile coverage for mid-range threats and small boats.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Surface Warfare (SUW) Mission Modules	7.967	0.000	3.000	0.000	3.000
Articles:	-	-	-	-	-
FY 2022 Plans: N/A All SUW MP developmental efforts are completed in FY 2021.					
FY 2023 Base Plans: - Conduct shock qualification testing of the SSMM. This testing is required to meet the shock hardening verification requirement for the SSMM and the ship shock certification requirement documented in OPNAVINST 9072.2A. - Hatch Cover Modification and Design: Revise the current SSMM hatch and cover design to address water leaking, hatch heaters, manual hatch opening, Heat Sensing Devices (HSD) relocation, new hatch stops, fall restraint staples, and limit switch changes.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2552 / Surface Warfare (SUW) Mission Package

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
The increase from Fy2022 to FY2023 funds the shock qualification of the SSMM.					
Accomplishments/Planned Programs Subtotals	7.967	0.000	3.000	0.000	3.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN 1600: LCS Common Mission Module Equipment	36.323	63.501	57.313	-	57.313	56.850	44.104	37.100	32.131	570.221	1,445.804
• OPN 1603: LCS SUW Mission Module	24.412	3.395	5.100	-	5.100	12.600	11.100	3.500	0.100	90.088	327.866
• WPN 4221: LCS Module Weapons	4.253	2.121	4.580	-	4.580	3.257	2.454	2.257	2.249	64.663	121.568

Remarks

D. Acquisition Strategy

The LCS MM Acquisition Strategy is employing an incremental procurement approach to allow for the rapid introduction of additional capabilities as system technology matures. This phased plan provides incremental fielding of capability through the introduction of mature programs of record into the respective Mission Packages until the full baseline capability defined in the Capability Development Document (CDD) is reached.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy												Date: April 2022				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 4				PE 0603596N / LCS Mission Modules				2552 / Surface Warfare (SUW) Mission Package								
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
3.0 SUW MP	MIPR	JAMS PO : Various	1.750	0.500	Feb 2021	0.000		0.000		-		0.000	0.000	2.250	-	
3.0 SUW MP	WR	NSWC DD : Dahlgren, VA	7.065	0.400	Nov 2020	0.000		3.000	Nov 2022	-		3.000	0.000	10.465	-	
Subtotal			8.815	0.900		0.000		3.000		-		3.000	0.000	12.715	N/A	
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
3.0 SUW MP	C/CPIF	Northrop Grumman : Bethpage, NY	0.800	1.800	Nov 2020	0.000		0.000		-		0.000	0.000	2.600	-	
3.0 SUW MP	WR	NSWC PHD : Port Hueneme, CA	0.000	2.000	Dec 2020	0.000		0.000		-		0.000	0.000	2.000	-	
Subtotal			0.800	3.800		0.000		0.000		-		0.000	0.000	4.600	N/A	
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
3.0 SUW MP CYBER Testing	Sub Allot	NSWC PHD : Port Hueneme, CA	5.028	0.750	Dec 2020	0.000		0.000		-		0.000	0.000	5.778	-	
3.0 SUW MP CYBER Testing	WR	NSWC Corona : Corona, CA	1.950	0.000		0.000		0.000		-		0.000	0.000	1.950	-	
3.0 SUW MP CYBER Testing	WR	NSWC DD : Dahlgren, VA	9.650	1.903	Jan 2021	0.000		0.000		-		0.000	0.000	11.553	-	
3.0 SUW MP CYBER Testing	WR	COMOPTEVFOR : Norfolk, VA	0.600	0.200	Dec 2020	0.000		0.000		-		0.000	0.000	0.800	-	
Subtotal			17.228	2.853		0.000		0.000		-		0.000	0.000	20.081	N/A	

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 2552 / Surface Warfare (SUW) Mission Package
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Proj 2552	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
SUW Mission Package				SUW Freedom Cyber					SSMM Shock				SSMM Hatch Mod Design																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) 2552 / <i>Surface Warfare (SUW) Mission Package</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 2552</i>				
SUW Mission Package: SUW Testing on Freedom Variant: SSMM Cyber	4	2021	1	2022
SUW Mission Package: SSMM Shock Qualification Testing	1	2023	4	2023
SUW Mission Package: SSMM Hatch Modification Development & Design	1	2024	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules				Project (Number/Name) 3129 / LCS Mission Package Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3129: LCS Mission Package Development	643.870	8.716	8.738	10.744	-	10.744	11.232	11.260	12.150	21.571	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 443												

A. Mission Description and Budget Item Justification

The LCS Mission Modules Common Equipment consists of enabling products required by all Mission Packages to provide common hardware interfaces, computer operating environment, communications systems, aviation interface systems, and portable development & integration test-sets. Common hardware interfaces include definition, installation, and control of mechanical, electrical, and cooling requirements common to all mission packages. The Mission Package Computing Environment (MPCE) provides common services and Operating Environment to support all Mission Package Application Software (MPAS) and Open Architecture Products. The Multi-Vehicle Communications System (MVCS) enables the control and data exchange of simultaneous unmanned mission vehicles and the ship. Aviation interface systems include integration and management of data communications, data processing, and physical hardware interfaces such as common equipment and containers used by all mission packages. Development and integration test-sets provide a mobile operating environment installed in the Mission Package Portable Control Stations (MPPCSs) to serve as a surrogate ship during mission package development and integration test events at test ranges.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Command, Control, Communication, Computers, Cyber and Intelligence (C5I) and Mission Package Tactical Team Trainers	8.716	8.738	10.744	0.000	10.744
Articles:	-	-	-	-	-
FY 2022 Plans: Mission Package Computing Environment (MPCE) - AN/SYK-31 In support of Technology Refresh of MPCE and certification of version 2.0: - Start integration and testing of MPCE v2.0 with the MCM Mission Package Application Software (MPAS) - Conduct Mission Package integration testing within MPCE v2.0 hardware environment - Complete Environmental Quality Testing - Acquire updated Logistics and Training material - Initiate development of Technical Data Package (TDP) for FY23 Delivery Multi-Vehicle Communications System (MVCS) - AN/SYC-1: Finalize development of MVCS v1.2.1 - Testing with MCM USV - Conduct environmental Quality Testing					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules	Project (Number/Name) 3129 / LCS Mission Package Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<ul style="list-style-type: none"> - Initiate strategy for future MVCS Integration with Common Control Software - Investigate system level requirements and explore capability improvement alternatives for MVCS v1.X <p>LCS Common Mission Package Portable Control Station (MPPCS)/Common Mission Package Trainer (CMPT)</p> <ul style="list-style-type: none"> - Implement the MPCE version 1.10 and 2.0 into MPPCS and CMPT <p>FY 2023 Base Plans: Mission Package Computing Environment (MPCE) - AN/SYK-31 In support of Technology Refresh of MPCE and certification of version 2.0:</p> <ul style="list-style-type: none"> - Continue integration and testing of MPCE v2.0 with the MCM Mission Package Application Software (MPAS) - Complete development and deliver MPCE version 2.0 Technical Data Package (TDP) - Conduct Mission Package testing with MPCE 2.0 - Conduct Production Readiness Review (PRR) and transition MPCE version 2.0 to production <p>Multi-Vehicle Communications System (MVCS) - AN/SYC-1:</p> <ul style="list-style-type: none"> - Support the implementation of Unmanned Vehicle transition to the Common Control Software (Beyond Line of Sight) - Develop requirements for MVCS 1.X (Tech Refresh) - Complete MCM USV, Knifefish, and LCS integration testing and certification of MVCS 1.2.1 <p>LCS Common Mission Package Portable Control Station (MPPCS)/Common Mission Package Trainer (CMPT)</p> <ul style="list-style-type: none"> - Continue the MPCE version 2.0 into MPPCS and CMPT <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: The program continues development of MPCE 2.0 and MVCS v1.X TR</p>					
Accomplishments/Planned Programs Subtotals	8.716	8.738	10.744	0.000	10.744

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN 1600: LCS Common Mission Modules Equipment	36.323	63.501	57.313	-	57.313	56.850	44.104	37.100	32.131	570.221	1,445.804

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN 1601: LCS <i>MCM Mission Modules</i>	189.397	30.119	94.987	-	94.987	165.038	180.874	163.658	121.516	1,496.842	2,855.192
• OPN 1602: LCS <i>ASW Mission Modules.</i>	38.359	1.565	3.594	-	3.594	6.926	0.000	0.000	0.000	15.345	90.406
• OPN 1603: LCS <i>SUW Mission Modules</i>	24.412	3.395	5.100	-	5.100	12.600	11.100	3.500	0.100	90.088	327.866
• WPN 4221: LCS Module Weapons	4.253	2.121	4.580	-	4.580	3.257	2.454	2.257	2.249	64.663	121.568

Remarks

D. Acquisition Strategy

The LCS Mission Module Acquisition Strategy is employing an incremental procurement approach to allow for the rapid introduction of additional capabilities as system technology matures. This phased plan provides incremental fielding of capability through the introduction of mature programs of record into the respective Mission Packages until the full baseline capability defined in the Capability Development Document (CDD) is reached.

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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
6.1 System Engineering	WR	NSWC PCD : Panama City, FL	0.275	0.000		0.000		0.000		-		0.000	0.000	0.275	-
6.1 System Engineering	WR	NSWC DD : Dahlgren, VA	1.784	0.000		0.000		0.000		-		0.000	0.000	1.784	-
6.1 System Engineering	WR	NAVSEALOGCEN : Norfolk, VA	1.520	0.000		0.000		0.000		-		0.000	0.000	1.520	-
6.1 System Engineering	C/CPFF	Northrop Grumman : Bethpage, NY	14.542	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
6.1 System Engineering	WR	NSWC Carderock : Bethesda, MD	2.610	0.000		0.000		0.000		-		0.000	0.000	2.610	-
6.1 System Engineering	WR	NSWC PHD : Port Hueneme, CA	1.568	0.000		0.000		0.000		-		0.000	0.000	1.568	-
6.1 System Engineering	WR	NIWC : San Diego, CA	7.660	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
6.1 System Engineering	C/CPIF	Booz Allen Hamilton : Washington, DC	0.355	0.000		0.000		0.000		-		0.000	0.000	0.355	-
6.4 Integration, Assembly, Test and Checkout	Sub Allot	CECOM Bldg 1207 : Various	1.092	0.000		0.000		0.000		-		0.000	0.000	1.092	-
6.4 Integration, Assembly, Test and Checkout	WR	NAWC AD : Patuxent River, MD	1.930	0.000		0.000		0.000		-		0.000	0.000	1.930	-
6.4 Integration, Assembly, Test and Checkout	WR	NSWC DD : Dahlgren, VA	0.203	0.000		0.000		0.000		-		0.000	0.000	0.203	-
6.4 Integration, Assembly, Test and Checkout	WR	NSWC PC : Panama City, FL	0.075	0.000		0.000		0.000		-		0.000	0.000	0.075	-
6.4 Integration, Assembly, Test and Checkout	C/CPFF	Northrop Grumman : Bethpage, NY	1.498	0.000		0.000		0.000		-		0.000	0.000	1.498	-
6.4 Integration, Assembly, Test and Checkout	WR	NSWC Carderock : Bethesda, MD	8.625	0.000		0.000		0.000		-		0.000	0.000	8.625	-
6.4 Integration, Assembly, Test and Checkout	C/CPFF	PMS 501 : Various	1.075	0.000		0.000		0.000		-		0.000	0.000	1.075	-
6.4 Integration, Assembly, Test and Checkout	WR	NIWC : San Diego, CA	1.857	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
6.4 Integration, Assembly, Test and Checkout	WR	NSWC PHD : Port Hueneme, CA	1.312	0.000		0.000		0.000		-		0.000	0.000	1.312	-
6.4 Integration, Assembly, Test and Checkout	C/CPIF	Booz Allen Hamilton : Washington, DC	0.950	0.000		0.000		0.000		-		0.000	0.000	0.950	-
6.4 Integration, Assembly, Test and Checkout	WR	NAVAIR : Lakehurst, NJ	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	C/CPFF	AAC : Uniontown, PA	20.691	2.423	Jan 2021	2.647	Dec 2021	2.647	Dec 2022	-		2.647	0.000	28.408	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NAWC TSD : Orlando, FL	2.304	0.000		0.000		2.152	Jan 2023	-		2.152	0.000	4.456	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	C/CPFF	Northrop Grumman : Bethpage, NY	4.482	0.800	Nov 2020	0.030	Nov 2021	0.030	Nov 2022	-		0.030	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NSWC PC : Panama City, FL	16.753	1.943	Nov 2020	4.345	Nov 2021	4.296	Nov 2022	-		4.296	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NUWC NPT : Newport, RI	3.074	0.205	Dec 2020	0.260	Dec 2021	0.260	Dec 2022	-		0.260	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	C/CPIF	Booz Allen Hamilton : Washington, DC	3.125	0.802	Nov 2020	0.000		0.000		-		0.000	0.000	3.927	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NIWC PAC : San Diego, CA	5.593	1.058	Jan 2021	0.600	Jan 2022	0.600	Jan 2023	-		0.600	0.000	7.851	-

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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NSWC DD : Dahlgren, VA	4.162	0.675	Dec 2020	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	PMW 760 : Various	0.889	0.000		0.000		0.000		-		0.000	0.000	0.889	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	C/CPFF	Progeny : Manassas, VA	1.730	0.000		0.000		0.000		-		0.000	0.000	1.730	-
1.0 MCM MP	WR	NSWC PC : Panama City, FL	71.297	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
1.0 MCM MP	Sub Allot	PMS 406 : Various	42.761	0.000		0.000		0.000		-		0.000	0.000	42.761	-
1.0 MCM MP	Sub Allot	PMS 495 : Various	0.249	0.000		0.000		0.000		-		0.000	0.000	0.249	-
1.0 MCM MP	WR	NSWC PHD : Port Hueneme, CA	2.300	0.000		0.000		0.000		-		0.000	0.000	2.300	-
1.0 MCM MP	C/CPIF	Booz Allen Hamilton : Washington, DC	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	-
1.0 MCM MP	C/CPFF	Northrop Grumman : Bethpage, NY	1.892	0.000		0.000		0.000		-		0.000	0.000	1.892	-
1.0 MCM MP	WR	Various : Various	1.124	0.000		0.000		0.000		-		0.000	0.000	1.124	-
2.0 ASW MP	Sub Allot	PEO IWS5E : Various	41.094	0.000		0.000		0.000		-		0.000	0.000	41.094	-
2.0 ASW MP	WR	NUWC NPT : Newport, RI	29.320	0.000		0.000		0.000		-		0.000	0.000	29.320	-
2.0 ASW MP	WR	SSC PAC : San Diego, CA	4.967	0.000		0.000		0.000		-		0.000	0.000	4.967	-
2.0 ASW MP	WR	CDSA Dam Neck : Virginia Beach, VA	11.145	0.000		0.000		0.000		-		0.000	0.000	11.145	-
2.0 ASW MP	C/CPFF	Northrop Grumman : Bethpage, NY	10.914	0.000		0.000		0.000		-		0.000	0.000	10.914	-

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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
2.0 ASW MP	WR	PEO IWS 5A : Various	9.301	0.000		0.000		0.000		-		0.000	0.000	9.301	-
2.0 ASW MP	C/CPFF	SPA : Washington, DC	1.687	0.000		0.000		0.000		-		0.000	0.000	1.687	-
2.0 ASW MP	WR	NSWC DD : Dahlgren, VA	0.871	0.000		0.000		0.000		-		0.000	0.000	0.871	-
2.0 ASW MP	WR	NUWC KPT : Keyport, WA	1.095	0.000		0.000		0.000		-		0.000	0.000	1.095	-
2.0 ASW MP	WR	NSWC PHD : Port Hueneme, CA	1.550	0.000		0.000		0.000		-		0.000	0.000	1.550	-
2.0 ASW MP	C/FPIF	Booz Allen Hamilton : Washington, DC	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
2.0 ASW MP	WR	NAWC WD : Point Mugu, CA	5.430	0.000		0.000		0.000		-		0.000	0.000	5.430	-
2.0 ASW MP	C/CPFF	Various : Various	3.757	0.000		0.000		0.000		-		0.000	0.000	3.757	-
2.0 ASW MP	Sub Allot	Raytheon : Portsmouth, RI	42.056	0.000		0.000		0.000		-		0.000	0.000	42.056	-
3.0 SUW MP	C/CPFF	JAMS PO : Various	7.980	0.000		0.000		0.000		-		0.000	0.000	7.980	-
3.0 SUW MP	WR	NAWC WD : Ridgecrest, CA	7.826	0.000		0.000		0.000		-		0.000	0.000	7.826	-
3.0 SUW MP	C/CPFF	Northrop Grumman : Bethpage, NY	60.524	0.000		0.000		0.000		-		0.000	0.000	60.524	-
3.0 SUW MP	WR	NSWC CD : Crane, IN	0.396	0.000		0.000		0.000		-		0.000	0.000	0.396	-
3.0 SUW MP	WR	NSWC Corona : Corona, CA	1.695	0.000		0.000		0.000		-		0.000	0.000	1.695	-
3.0 SUW MP	WR	NSWC DD : Dahlgren, VA	60.316	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
3.0 SUW MP	WR	NSWC PHD : Port Hueneme, CA	30.437	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
3.0 SUW MP	Sub Allot	PEO IWS 3 : Various	9.819	0.000		0.000		0.000		-		0.000	0.000	9.819	-
Subtotal			574.637	7.906		7.882		9.985		-		9.985	Continuing	Continuing	N/A

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Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
6.5 Training Systems Development	WR	NAWC TSD : Orlando, FI	0.909	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
6.5 Training Systems Development	WR	NSWC PHD : Port Hueneme, CA	0.390	0.000		0.000		0.000		-		0.000	0.000	0.390	-
6.5 Training Systems Development	C/CPIF	Booz Allen Hamilton : Washington, DC	0.268	0.000		0.000		0.000		-		0.000	0.000	0.268	-
6.5 Training Systems Development	C/CPAF	Northrop Grumman : Bethpage, NY	0.575	0.000		0.000		0.000		-		0.000	0.000	0.575	-
6.5 Training Systems Development	Sub Allot	Various : Various	3.221	0.000		0.000		0.000		-		0.000	0.000	3.221	-
6.5 Training Systems Development	WR	JHU/APL : Laurel, MD	1.479	0.000		0.000		0.000		-		0.000	0.000	1.479	-
Subtotal			6.842	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
6.3 System Test and Evaluation	WR	NSWC PHD : Port Hueneme, CA	27.963	0.000		0.000		0.000		-		0.000	0.000	27.963	-
6.3 System Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	4.944	0.000		0.000		0.000		-		0.000	0.000	4.944	-
6.3 System Test and Evaluation	WR	NSWC Corona : Corona, CA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
6.3 System Test and Evaluation	WR	NIWC : San Diego, CA	5.258	0.000		0.000		0.000		-		0.000	0.000	5.258	-
6.3 System Test and Evaluation	C/CPIF	Booz Allen Hamilton : Washington, DC	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	-
Subtotal			39.415	0.000		0.000		0.000		-		0.000	0.000	39.415	N/A

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Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
6.2 Program Management	C/CPFF	CACI : Fairfax, VA	7.698	0.000		0.000		0.000		-		0.000	0.000	7.698	-
6.2 Program Management	C/CPIF	Booz Allen Hamilton : Washington DC	4.695	0.810	Nov 2020	0.856	Dec 2021	0.759	Dec 2022	-		0.759	0.000	7.120	-
6.2 Program Management	FFRDC	Mitre : McLean, VA	2.679	0.000		0.000		0.000		-		0.000	0.000	2.679	-
6.2 Program Management	FFRDC	JHU/APL : Laurel, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
6.2 Program Management	C/CPFF	Northrop Grumman : Bethpage, NY	4.977	0.000		0.000		0.000		-		0.000	0.000	4.977	-
6.2 Program Management	C/CPFF	NSWC Crane : Various	2.927	0.000		0.000		0.000		-		0.000	0.000	2.927	-
Subtotal			22.976	0.810		0.856		0.759		-		0.759	0.000	25.401	N/A
Project Cost Totals			643.870	8.716		8.738		10.744		-		10.744	Continuing	Continuing	N/A

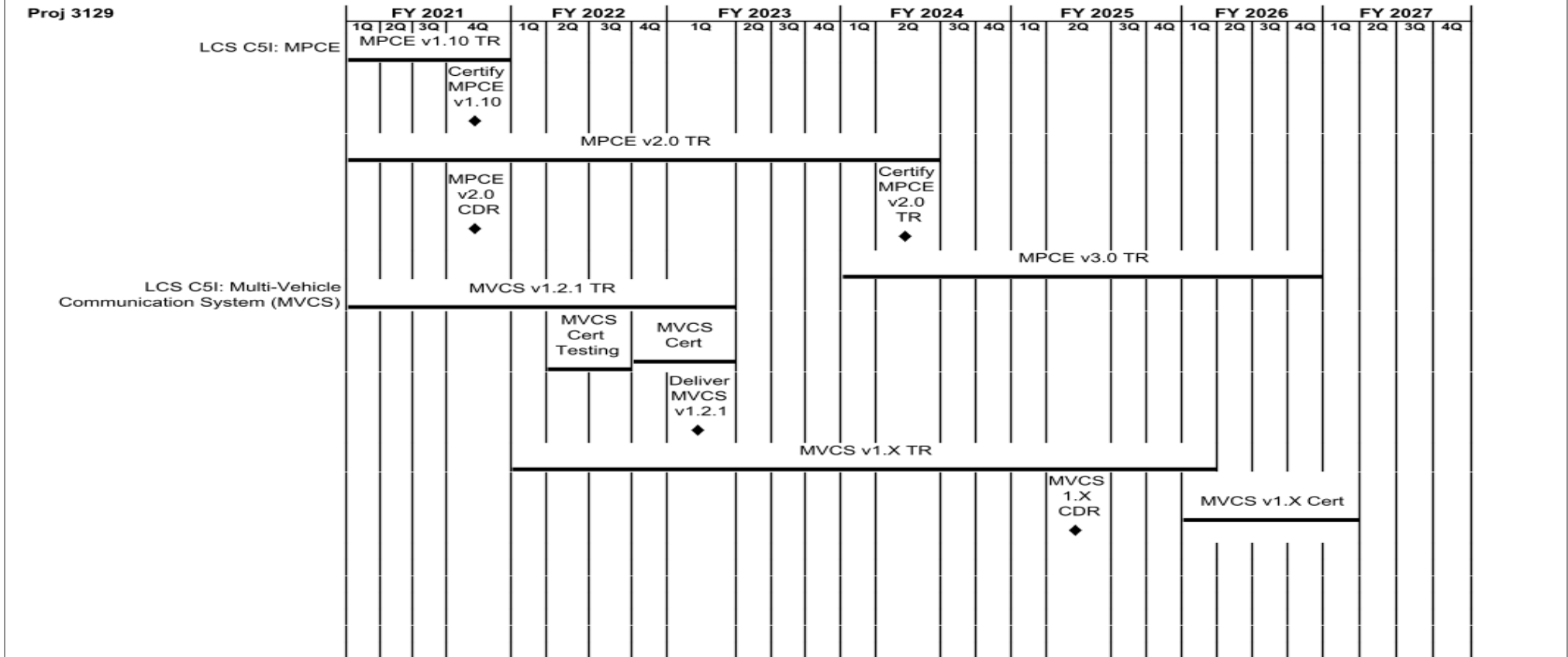
Remarks
 Beginning in FY 2019, Mission Package funding is realigned into four (4) projects:
 2550 Mine Countermeasures (MCM) Mission Package
 2551 Anti-Submarine Warfare (ASW) Mission Package
 2552 Surface Warfare (SUW) Mission Package
 3129 LCS Mission Package Development

Prior to FY 2019 all Mission Package funding was in Project 3129.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3129				
LCS C5I: MPCE: MPCE v1.10 Tech Refresh Development	1	2021	4	2021
LCS C5I: MPCE: Certify MPCE v1.10	4	2021	4	2021
LCS C5I: MPCE: MPCE v2.0 Tech Refresh Development	1	2021	2	2024
LCS C5I: MPCE: Conduct Critical Design Review (CDR) for MPCE v2.0	4	2021	4	2021
LCS C5I: MPCE: Certify MPCE v2.0	2	2024	2	2024
LCS C5I: MPCE: MPCE v3.0 Tech Refresh Development	1	2024	4	2026
LCS C5I: Multi-Vehicle Communication System (MVCS): MVCS v1.2.1 Tech Refresh Development	1	2021	1	2023
LCS C5I: Multi-Vehicle Communication System (MVCS): MVCS: MVCS v1.2.1 Certification Testing	2	2022	3	2022
LCS C5I: Multi-Vehicle Communication System (MVCS): MVCS: Certify MVCS v1.2.1	4	2022	1	2023
LCS C5I: Multi-Vehicle Communication System (MVCS): Deliver MVCS v1.2.1	1	2023	1	2023
LCS C5I: Multi-Vehicle Communication System (MVCS): MVCS v1.X Tech Refresh Development	1	2022	1	2026
LCS C5I: Multi-Vehicle Communication System (MVCS): MVCS: CDR for MVCS v1.X	2	2025	2	2025
LCS C5I: Multi-Vehicle Communication System (MVCS): MVCS: Certify MVCS v1.X	1	2026	1	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603596N / LCS Mission Modules				Project (Number/Name) 9999 / Congressional Adds			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9999: Congressional Adds	0.000	9.647	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.647
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

\$10M Congressional Add in FY 2021 for LCS Anti-Submarine Warfare Escort Mission Module Test Ship Installation.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022
Congressional Add: LCS Anti-Submarine Warfare Escort Mission Module Test Ship installation	9.647	0.000
FY 2021 Accomplishments: In response to the Congressional Add for LCS ASW EMM Test Ship Installation: INSTALL ASW MP ON A WHITE SHIP AND CONDUCT TESTING - Determine speed and integration requirements in support of hydrodynamic design and testing - Complete integration design of towed body and cabling for White Ship - Work with Variable Depth Sonar (VDS) vendor to integrate towed body and cabling - Conduct multiple test of different towed body and dive plane designs. ASW MP CONSOLE DEVELOPMENT TO SUPPORT ASW MP INSTALLATION ON LCS - Analyze vibration test results for previous ASW MP console design - Design and test a modified ASW MP console to meet all requirements - Assemble consoles and provide for integration - Integrate ASW MP consoles on LCS 21 in support of formal testing. FY 2022 Plans: N/A		
Congressional Adds Subtotals	9.647	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Proj 9999	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Console Upgrades				LCS 21 Console Integration																							
					LCS 26 Console Integration																							
					FRE SIDs																							

2023PB - 0603596N - 9999

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / <i>LCS Mission Modules</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 9999</i>				
Develop ASW MP Console Upgrades	1	2021	4	2021
Integrate Consoles on LCS 21	1	2022	1	2022
Integrate Consoles on LCS 26	1	2022	2	2022
Development of FRE Variant SIDs for MP Integration	4	2021	4	2022