Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
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 0603596N *I (U)LCS Mission Modules*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	371.619	153.595	116.871	103.633	-	103.633	70.548	45.057	46.016	28.703	Continuing	Continuing
2550: *Mine Countermeasure (MCM) Mission Package*	0.000	0.000	0.000	41.813	-	41.813	39.499	26.419	27.878	10.793	Continuing	Continuing
2551: *Anti-Submarine Warfare (ASW) Mission Package*	0.000	0.000	0.000	41.553	-	41.553	19.180	9.282	8.884	8.500	Continuing	Continuing
2552: *Surface Warfare (SUW) Mission Package*	0.000	0.000	0.000	11.368	-	11.368	1.558	0.000	0.000	0.000	0.000	12.926
3129: *LCS Mission Package Development*	371.619	153.595	116.871	8.899	-	8.899	10.311	9.356	9.254	9.410	Continuing	Continuing
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 443												

A. Mission Description and Budget Item Justification

The FY 2019 funding request was reduced by $0.224 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

This Program Element (PE) provides funds for detailed design, development, issue resolution, certification, integration, and testing of the Littoral Combat Ship (LCS) Mission Modules (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 littoral.

The LCS MM Program is utilizing 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 sea frames. 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, one of the most important benefits of LCS modular design.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
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 0603596N *I (U)LCS Mission Modules*

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

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 and move 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 that pose a threat.

C5I: Once mission package specific RDT&E funding was split out from the LCS Mission Package Development project element 3129, the remaining funds provide the 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). The MPCE provides common services and an Operating Environment to support all Mission Package Application Software and Open Architecture Products. The 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. The 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	160.058	116.871	78.302	-	78.302
Current President's Budget	153.595	116.871	103.633	-	103.633
Total Adjustments	-6.463	0.000	25.331	-	25.331
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	26.976	-	26.976
• Rate/Misc Adjustments	0.000	0.000	-1.645	-	-1.645
• Congressional General Reductions Adjustments	-0.013	-	-	-	-
• Congressional Directed Reductions Adjustments	-6.450	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
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 0603596N *I (U)LCS Mission Modules*

Change Summary Explanation

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.

The increase in FY 2019 addresses MCM shortfalls and supports stand up of the LCS MCM divisions to minimize service life extensions to both MCM-1 ships and the MH-53E Helicopters. Specifically, this increase funds the completion of MCM USV integration into the MCM MP to support formal developmental testing in FY 2019 / FY 2020, operational testing in FY 2020, and MCM MP Initial Operational Capability in FY 2021.

Additionally, the increase in FY19 supports ASW mission package integration on Independence variant and initiation of the ASW ACB/TI process.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 2550 / *Mine Countermeasure (MCM) Mission Package*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2550: *Mine Countermeasure (MCM) Mission Package*	0.000	0.000	0.000	41.813	-	41.813	39.499	26.419	27.878	10.793	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 443

A. Mission Description and Budget Item Justification

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.

The LCS MM Program is utilizing 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 sea frames. Future Mine Countermeasures (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 MCM MP will counter deep, shallow, and tethered mines in the littoral 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. The MCM MP provides these capabilities through the use of sensors and weapons deployed from an MH-60S multi-mission helicopter, unmanned off-board vehicles, and support equipment/ containers. The MCM MP consists of the following modules:

- Remote Minehunting (RMH) Module: MCM Unmanned Surface Vehicle (MCM USV) + AN/AQS-20 Minehunting Sonar
- Coastal Mine Reconnaissance (CMR) Module: Coastal Battlefield Reconnaissance & Analysis (COBRA) + MQ-8B Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV)
- Near Surface Detection (NSD) Module: Airborne Laser Mine Detection System (ALMDS) + MH-60S Helicopter
- Airborne Mine Neutralization (AMN) Module: Airborne Mine Neutralization System (AMNS) + MH-60S Helicopter
- Unmanned Minesweeping (UMS) Module: Unmanned Influence Sweeping System (UISS) (MCM USV + Unmanned Surface Sweep System)
- Buried Minehunting (BMH) Module: Knifefish Unmanned Underwater Vehicle (UUV)

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

The RMH Module provides sustained mine hunting and clearing from the surface, the UMS Module provides endurance bottom and volume sweep capability, the CMR Module will allow detection of minefield patterns and obstacles from an embarked Fire Scout VTUAV in the beach zone, and the BMH Module will allow detection of buried mines. When complete, the MCM MP will provide full capability against floating, tethered, bottom, and buried mines.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Mine Countermeasures (MCM) Mission Modules	0.000	0.000	41.813	0.000	41.813
Articles:	-	-	-	-	-
FY 2018 Plans: Funded under project 3129 LCS Mission Package Development.					
FY 2019 Base Plans: For the Mine Countermeasures (MCM) Mission Package (MP) Remote Minehunting (RMH) Module, commence integration AN/AQS-20C on MCM USV + hunt and conduct initial at-sea tests. Testing requires chase boats, placement and removal of mines in a minefield. Commence integration of MCM USV + hunt on Independence variant. Modify MPAS 3.0.0.0 to incorporate MCM USV and AN/AQS-20C software. For the MCM MP Airborne Mine Neutralization (AMN) Module, integrate and conduct at-sea tests on Freedom variant. Commence studies to Integrate Barracuda on the MCM USV. Certify AMN module for use on Freedom variant. For the MCM MP Near Surface Detection (NSD) Module, integrate and conduct at-sea test on Freedom variant. Testing requires placement and removal of mines in a minefield along with 24 hours monitoring of minefield with an at-sea chase boat. Certify NSD module for use on Freedom variant. For the MCM MP Coastal Mine Reconnaissance (CMR) Module, integrate and conduct at-sea test on Freedom variant. Certify CMR module for use on Freedom variant. For the MCM MP Unmanned Minesweeping (UMS) module, conduct UISS at-sea Developmental Test (DT), conduct UMS integration, at-sea DT, and at-sea Operational Assessment (OA) on LCS Independence variant. Testing requires chase boats, placement and removal of mines in a minefield, and procurement of test spares and test support equipment. Modify MPAS 2.0.0.0 incorporating correction of software Problem Trouble Reports (PTRs) identified during UMS DT.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
For the MCM Buried Minehunting (BMH) Module, conduct pier-side Knifefish Launch and Recovery demonstration, conduct integration and at-sea Knifefish DT and BMH DT on Independence variant. Testing requires placement and removal of mines in a minefield, and procurement of test spares and test support equipment. Modify MPAS 2.0.0.0 incorporating correction of software Problem Trouble Reports (PTRs) identified during BMH DT. Deliver and install common Post Mission Analysis (PMA) hardware on LCS. For the entire MCM MP, conduct DT work-ups and at-sea MCM DT-B10 Phase I testing integrating AMN, NSD, CMR, RMH, UMS and BMH modules. Testing requires chase boats, placement and removal of mines in a minefield, procurement of test spares and test support equipment and at-sea chase craft to monitor the minefield 24/7. In support of MCM MP, develop and delivery MCM Mission Package Application Software (MPAS) build 3.0.0.0. Perform systems engineering (risk management, information assurance, human systems integration, safety), configuration management and Integrated Logistics Support (ILS). Continue to compile system and package level Reliability and Maintainability (RAM-C) data to support reliability engineering and a prioritized initial spares list. Perform Full Operational Capability (FOC) RAM-C analysis with updated data and update RAM-C Rationale Report. Continue MCM MP Failure Reporting, Analysis, and Corrective Action System (FRACAS) effort. Integration and development efforts for vehicle-based MVCS are included within the corresponding module development. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Significant increase in at-sea testing of MCM MP on LCS Independence variant resulting from contractor delivery of MCM USV, Knifefish and UISS systems.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	41.813	0.000	41.813

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 1600: *LCS Common Mission Modules Equipment*	14.670	34.666	46.732	-	46.732	51.553	36.657	55.776	29.787	734.284	1,427.898
• 1601: *LCS MCM Mission Modules*	29.724	55.870	124.147	-	124.147	204.324	245.108	227.068	234.109	1,403.599	2,673.330

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

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.

E. Performance Metrics

Program Completed Milestone B January 2014
Complete MCM MP DT, TECHEVAL, and IOT&E on Independence variant
Achieve MCM MP Initial Operational Capability (IOC) on Independence variant
Conduct MCM MP DT, TECHEVAL, and IOT&E on Freedom variant

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MCM MP	WR	NSWC PCD : Panama City, FL	0.000	0.000		0.000		21.242	Nov 2018	-		21.242	Continuing	Continuing	Continuing
MCM MP	Sub Allot	PMS 406 : Various	0.000	0.000		0.000		5.000	Feb 2019	-		5.000	6.400	11.400	-
MCM MP	Sub Allot	PMS 495 : Various	0.000	0.000		0.000		1.000	Feb 2019	-		1.000	2.400	3.400	-
MCM MP	WR	NSWC PHD : Port Hueneme, CA	0.000	0.000		0.000		4.571	Dec 2018	-		4.571	12.800	17.371	-
MCM MP	C/CPIF	Northrop Grumman : Bethpage, NY	0.000	0.000		0.000		9.600	Jan 2019	-		9.600	4.800	14.400	-
		Subtotal	0.000	0.000		0.000		41.413		-		41.413	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MCM Program Management	C/CPFF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.000		0.400	Oct 2018	-		0.400	1.680	2.080	-
		Subtotal	0.000	0.000		0.000		0.400		-		0.400	1.680	2.080	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		41.813		-		41.813	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

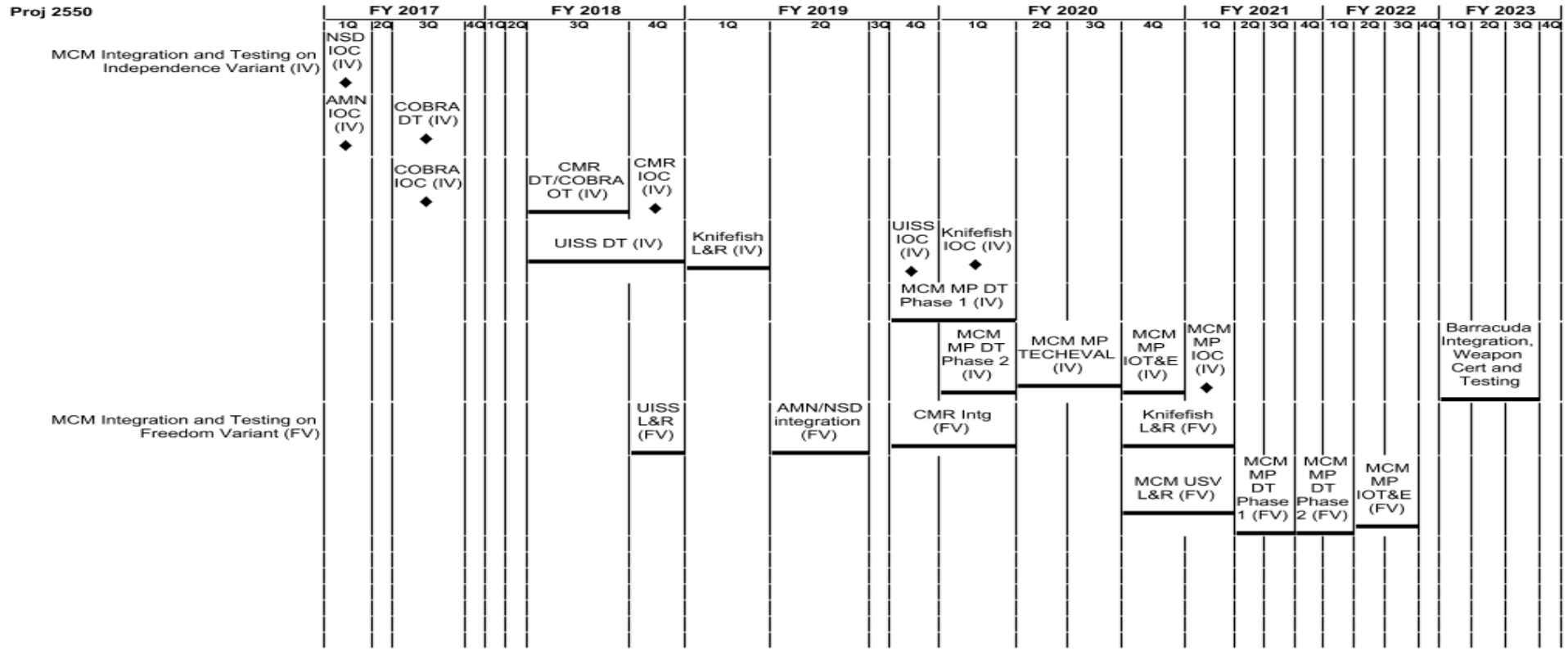

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2550				
MCM Integration and Testing on Independence Variant (IV): NSD Mission Module (ALMDS) Certified for Operations (Indy Variant)	1	2017	1	2017
MCM Integration and Testing on Independence Variant (IV): AMN Mission Module (AMNS) Certified for Operations (Indy Variant)	1	2017	1	2017
MCM Integration and Testing on Independence Variant (IV): COBRA Mission System DT	3	2017	3	2017
MCM Integration and Testing on Independence Variant (IV): COBRA Mission System IOC	3	2017	3	2017
MCM Integration and Testing on Independence Variant (IV): CMR DT/COBRA at-Sea OT	3	2018	3	2018
MCM Integration and Testing on Independence Variant (IV): CMR Mission Module Certified for Operations	4	2018	4	2018
MCM Integration and Testing on Independence Variant (IV): UISS Mission System DT/ OA	3	2018	4	2018
MCM Integration and Testing on Independence Variant (IV): Knifefish L&R	1	2019	1	2019
MCM Integration and Testing on Independence Variant (IV): UISS Mission System IOC	4	2019	4	2019
MCM Integration and Testing on Independence Variant (IV): Knifefish Mission System IOC	1	2020	1	2020
MCM Integration and Testing on Independence Variant (IV): DT-B10 (Phase 1)	4	2019	1	2020
MCM Integration and Testing on Independence Variant (IV): DT-B10 (Phase 2)	1	2020	1	2020
MCM Integration and Testing on Independence Variant (IV): DT-C10 TECHEVAL	2	2020	3	2020
MCM Integration and Testing on Independence Variant (IV): OT-C10 IOT&E	4	2020	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2550 / *Mine Countermeasure (MCM) Mission Package*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MCM Integration and Testing on Independence Variant (IV): MCM MP IOC on Independence Variant	1	2021	1	2021
MCM Integration and Testing on Independence Variant (IV): Barracuda DT/OT	1	2023	3	2023
MCM Integration and Testing on Freedom Variant (FV): UISS L&R	4	2018	4	2018
MCM Integration and Testing on Freedom Variant (FV): AMN/NSD integration	2	2019	2	2019
MCM Integration and Testing on Freedom Variant (FV): CMR Integration	4	2019	1	2020
MCM Integration and Testing on Freedom Variant (FV): Knifefish L & R	4	2020	1	2021
MCM Integration and Testing on Freedom Variant (FV): MCM USV Launch & Recovery Plus Sweep	4	2020	1	2021
MCM Integration and Testing on Freedom Variant (FV): DT-B9 (Phase 1)	2	2021	3	2021
MCM Integration and Testing on Freedom Variant (FV): DT-B9 (Phase 2)	4	2021	1	2022
MCM Integration and Testing on Freedom Variant (FV): OT-C9 IOT&E	2	2022	3	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 2551 / *Anti-Submarine Warfare (ASW) Mission Package*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2551: *Anti-Submarine Warfare (ASW) Mission Package*	0.000	0.000	0.000	41.553	-	41.553	19.180	9.282	8.884	8.500	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 443

A. Mission Description and Budget Item Justification

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.

The ASW MP enables LCS to conduct detect-to-engage operations against modern submarines that pose a threat. 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 Light Weight Tow torpedo countermeasure, a Variable Depth Sonar, a Multi-Function Towed Array and sonar signal processing. These individual systems are combined into three modules: Torpedo Defense Module; an ASW Escort Mission Module that provides High value unit escort capability; and an Aviation Module that offers airborne threat localization and engagement capability through a MQ-8B Fire Scout VTUAV and an MH-60R with MK54 torpedoes.

This project will deliver the ASW Escort Mission Module Pre-Production Test Article (PPTA), the Torpedo Defense Module, and the Aviation Module in Q1FY19. Following the delivery, the ASW Mission Package will be installed on board Freedom Variant, and conducted subsequent Developmental Test & Evaluation (DT&E) and Initial Operational Test & Evaluation (IOT&E) and establish Initial Operational Capability (IOC) in FY19. In conjunction with integration and testing onboard a Freedom variant, the project will initiate shipboard integration of the Independence variant and will transition to production in FY19.

ASW Mission Package will take advantage of improvements developed under the submarine Advanced Processing Build (APB), Advanced Surveillance Build (ASB) and Advanced Capability Build (ACB) and will in turn share unique improvements developed under this program with the submarine, cruisers, destroyers and surveillance ASW communities. All programs (ACB, ASB, and APB) are managed under a common development process and titled AxB. This will contribute to the development of Littoral Combat Ship (LCS) ASW Mission Packages and the Guided Missile Frigate FFG(X) Program. While the LCS ASW MP will retains its uniqueness, and focus

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

in functional domains essential to mission package success, a premium is placed on development of common capabilities and modular architecture technologies to maximize commonality and cost effectiveness.

The Open System Architecture (OSA) and high performance COTS sonar processing hardware, as provided as an adjunct to the Mission Package Computing Environment (MPCE) will be fielded with the ASW Mission Package and will provide an opportunity to integrate emergent, transformational ASW technological improvements that were previously unachievable. The ASW Mission Package will require periodic upgrades to remain effective well into the 21st century and to pace the threat. Software upgrades target capability increases in high interest areas as prescribed by the Fleet and captured in campaign analysis. To achieve this, this project will package and deliver incremental upgrades every four years to the ASW Mission Package production program via an ACB development process by inserting maturing USW technologies and addressing hardware technology obsolescence.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Anti-Submarine Warfare (ASW) Mission Modules	0.000	0.000	41.553	0.000	41.553
Articles:	-	-	-	-	-
FY 2018 Plans: Funded under project 3129 LCS Mission Package Development.					
FY 2019 Base Plans: PREPARE AND CONDUCT FORMAL TESTING ON FREEDOM VARIANT: 1.) Complete System Qualification Testing (SQT) of the EMM module 2.) Deliver the ASW Mission Package to the Land Based Integration Test Site (LBITS) 3.) Conduct End-to-End testing at the Land Based Integration Test Site (LBITS) 4.) Embark the ASW Mission Package and conduct Installation Check Out (INCO) procedures 5.) Conduct Crew Training 6.) Conduct ASW Mission Package Readiness Assessment (MPRA) /Mission Readiness Assessment (MRA) and certification the package to start formal developmental and operational testing on Freedom variant. 7.) Conduct formal developmental testing, TECHEVAL, and IOT&E on Freedom variant to support ASW MP Initial Operational Capability (IOC). CONTINUE INTEGRATION OF ASW MP ON INDEPENDENCE VARIANT IN PREPARATION FOR FORMAL TESTING: 1.) Develop test requirements for the Independence Variant Ship Alteration (SHIPALT) 2.) Complete the Ship Installation Drawings (SIDs) 3.) Conduct ship checks					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
4.) Complete development of ASW MP SHIPALT/PC for Independence variant in preparation for MP embark/ debark and developmental and operational testing in FY 2020. 5.) Work with shipbuilder to ensure work packages are developed and approved for execution during LCS Selected Restricted Availability (SRA) period. 6.) Finalize safety analysis of the ASW equipment on the Independence variant. 7.) Conduct ASW MP Weapon System Explosives Safety Review Board (WSESRB) to support ASW MP certification 8.) Finalize testing objectives, performance prediction modeling, and test plans to support the execution of an ASW MP developmental and operational testing of the ASW MP on Independence variant in FY 2020. 9.) Conduct at-sea end-to-end (E2E) integration testing on Independence variant hull to include ASW MP and combat system performance validation testing. In support of transitioning EMM to production in FY19, the project will conduct System Qualification Testing (SQT), System Verification Review (SVR), Functional Configuration Audit (FCA), Physical Configuration Audit (PCA), validate sonar acoustic performance, validate shipboard interfaces, validate launch, handling and recovery, and conduct embarks and debarks. The project will conduct a Production Readiness Review (PRR) in Q3FY19. Continue EMM acoustic processing software and hardware (ACB19 software and TI18 sonar signal processing hardware) which is a four-year cycle to address both software and hardware obsolescence. Complete development of ASW MP operator training materials and course curriculum to support Train to Qualify and Train to Certify requirements. Continue development of component and system level modeling and simulation capabilities to enable high fidelity virtual reality training. Deliver Operations and Maintenance and fundamental courseware to LCS Training Facility. Continue Factory training events in support of formal courseware development. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19, the project will be increasing activities in support of formal testing on the Freedom variant, initiating shipboard integration on the Independence variant and installation of the SHIPALT on the Independence Variant,					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
initiation of the ACB19/TI18 in coordination with PEO IWS 5 and conducting crew training to support ship deployments starting in FY22. In 2019, the ASW Mission Package will take advantage of improvements developed under the submarine Advanced Processing Build (APB), Advanced Surveillance Build (ASB) and Advanced Capability Build (ACB) and will in turn share unique improvements developed under this program with the submarine, cruisers, destroyers and surveillance ASW communities. All programs (ACB, ASB, and APB) are managed under a common development process and titled AxB. This will contribute to the development of Littoral Combat Ship (LCS) ASW Mission Packages and the Guided Missile Frigate (FFG(X)) Program. While the LCS ASW MP will retains its uniqueness, and focus in functional domains essential to mission package success, a premium is placed on development of common capabilities and modular architecture technologies to maximize commonality and cost effectiveness.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	41.553	0.000	41.553

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 1600: *LCS Common Mission Modules Equipment*	14.670	34.666	46.732	-	46.732	51.553	36.657	55.776	29.787	734.284	1,427.898
• 1602: *LCS ASW Mission Modules*	0.000	0.000	57.294	-	57.294	52.754	63.181	34.104	34.777	142.398	384.508

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.

E. Performance Metrics

Program Completed Milestone B January 2014
Complete ASW MP DT, TECHEVAL, and IOT&E on Freedom variant
Achieve ASW MP IOC on Freedom variant
Complete ASW MP DT, TECHEVAL, and IOT&E on Independence variant

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2.0 ASW MP	Sub Allot	PEO IWS 5E : Various	0.000	0.000		0.000		1.500	Nov 2018	-		1.500	0.000	1.500	-
2.0 ASW MP	WR	NUWC NPT : New Port RI	0.000	0.000		0.000		2.370	Nov 2018	-		2.370	Continuing	Continuing	Continuing
2.0 ASW MP	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.750	Dec 2018	-		0.750	0.000	0.750	-
2.0 ASW MP	WR	NUWC KPT : Keyport, Wa	0.000	0.000		0.000		0.500	Nov 2018	-		0.500	0.000	0.500	-
2.0 ASW MP	C/CPFF	Northrop Grumman : Bethpage, NU	0.000	0.000		0.000		2.800	Jan 2019	-		2.800	0.000	2.800	-
2.0 ASW MP	Sub Allot	PEO IWS 5A : Various	0.000	0.000		0.000		10.000	Mar 2019	-		10.000	Continuing	Continuing	Continuing
2.0 ASW MP	C/CPFF	CSRA : Washington, DC	0.000	0.000		0.000		0.255	Jan 2019	-		0.255	0.000	0.255	-
2.0 ASW MP	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		0.225	Nov 2018	-		0.225	0.000	0.225	-
2.0 ASW MP	WR	SUP SHIP Bath : Bath, Me	0.000	0.000		0.000		1.550	Oct 2018	-		1.550	0.000	1.550	-
2.0 ASW MP	MIPR	NAWC WD : Point Mugu, CA	0.000	0.000		0.000		0.410	Dec 2018	-		0.410	0.000	0.410	-
2.0 ASW MP	C/FFP	Raytheon : Portmonth, RI	0.000	0.000		0.000		4.210	Nov 2018	-		4.210	0.000	4.210	-
		Subtotal	0.000	0.000		0.000		24.570		-		24.570	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2.0 ASW MP Test and Evaluation (Freedom)	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.000		0.000		0.550	Oct 2018	-		0.550	0.000	0.550	-
2.0 ASW MP Test and Evaluation (Freedom)	WR	NSWC PHD : Port Hueneme, Ca	0.000	0.000		0.000		1.766	Dec 2018	-		1.766	0.000	1.766	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2.0 ASW MP Test and Evaluation (Freedom)	WR	Range Service : Var*	0.000	0.000		0.000		3.154	Oct 2018	-		3.154	0.000	3.154	-
2.0 ASW MP Test and Evaluation (Freedom)	WR	NUWC NPT : Newport, RI	0.000	0.000		0.000		7.362	Dec 2018	-		7.362	0.000	7.362	-
2.0 ASW MP Test and Evaluation (Freedom)	WR	NUWC KPT : Keyport, Wa	0.000	0.000		0.000		2.600	Nov 2018	-		2.600	0.000	2.600	-
2.0 ASW MP Test and Evaluation (Freedom)	C/CPFF	Raytheon : Portmonth, RI	0.000	0.000		0.000		1.000	Jan 2019	-		1.000	0.000	1.000	-
		Subtotal	0.000	0.000		0.000		16.432		-		16.432	0.000	16.432	N/A

Remarks

* Testing will be conducted at Nanoose, BC for Light Weight Tow testing and in Hawaii for ASW MP testing.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2.0 ASW MP	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.000		0.551	Jan 2019	-		0.551	0.000	0.551	-
		Subtotal	0.000	0.000		0.000		0.551		-		0.551	0.000	0.551	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		41.553		-		41.553	Continuing	Continuing	N/A

Remarks

Beginning in FY 2019, Mission Package funding is realigned into four (4) projects:

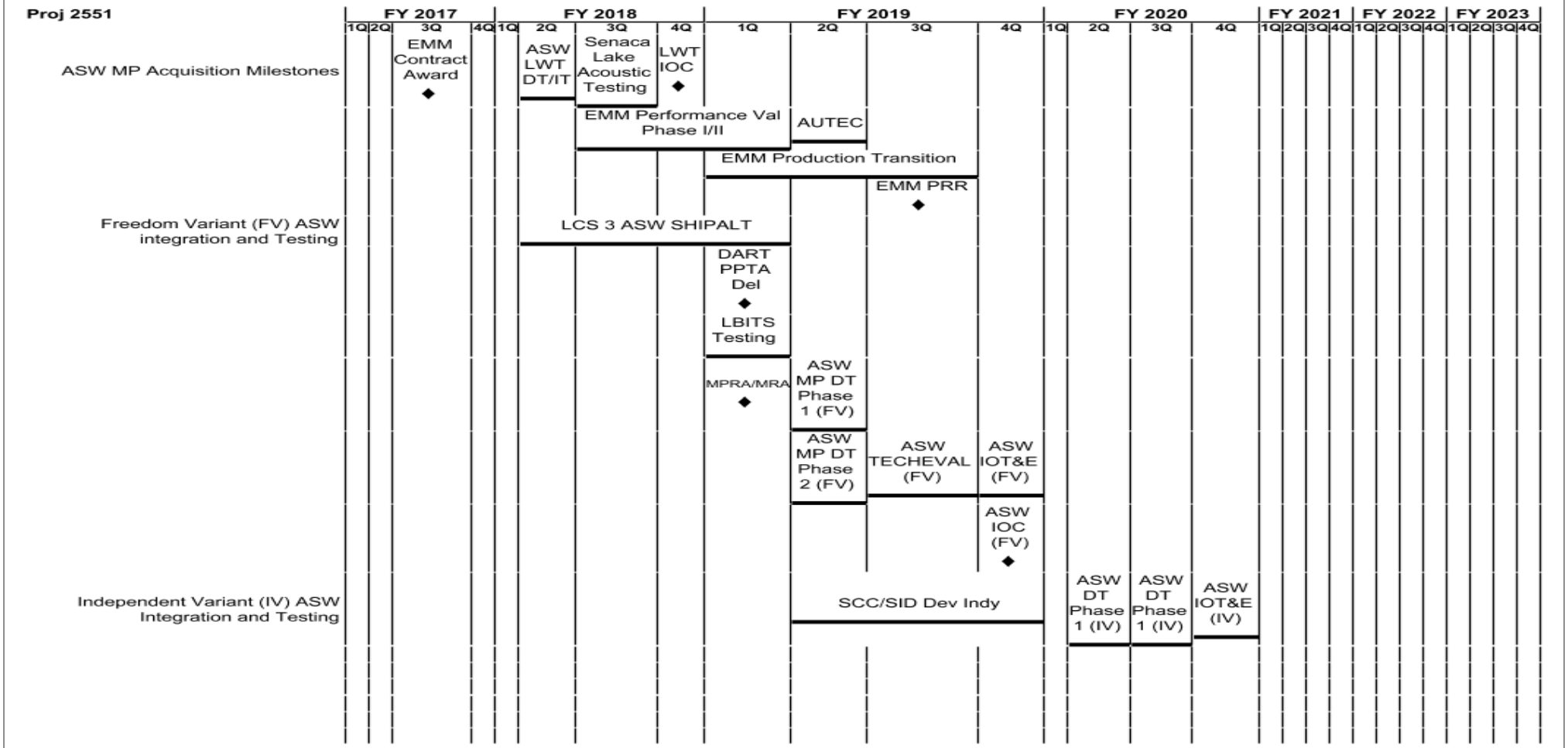
2550 Mine Countermeasures (MCM) Mission Package
2551 Anti-Submarine Warfare (ASW) Mission Package
2552 Surface Warfare (SUW) Mission Package
3129 LCS Mission Package Development

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 2551 / *Anti-Submarine Warfare (ASW) Mission Package*	

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract

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

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*



2019PB - 0603596N - 2551

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2551				
ASW MP Acquisition Milestones: EMM Contract Award	3	2017	3	2017
ASW MP Acquisition Milestones: ASW MP LWT Developmental Testing (DT/IT)	2	2018	2	2018
ASW MP Acquisition Milestones: ASW MP LWT IOC	4	2018	4	2018
ASW MP Acquisition Milestones: Acoustic Characterization Senaca Lake	3	2018	3	2018
ASW MP Acquisition Milestones: EMM Component and System Level Performance Validation Dock Side Testing	3	2018	1	2019
ASW MP Acquisition Milestones: White Ship Testing AUTEC	2	2019	2	2019
ASW MP Acquisition Milestones: EMM Production Transition	1	2019	3	2019
ASW MP Acquisition Milestones: EMM Production Readiness Review	3	2019	3	2019
Freedom Variant (FV) ASW integration and Testing: ASW SHIPALT Installation and INCO	2	2018	1	2019
Freedom Variant (FV) ASW integration and Testing: DART Pre-Production Test Article Delivery	1	2019	1	2019
Freedom Variant (FV) ASW integration and Testing: ASW MP Land Based Integration and Testing	1	2019	1	2019
Freedom Variant (FV) ASW integration and Testing: ASW Mission Package Readiness Assessment (MPRA)/Mission Readiness Assessment	1	2019	1	2019
Freedom Variant (FV) ASW integration and Testing: ASW MP DT-B3 Phase 1	2	2019	2	2019
Freedom Variant (FV) ASW integration and Testing: ASW MP DT-B3 Phase 2	2	2019	2	2019
Freedom Variant (FV) ASW integration and Testing: ASW MP DT/IT-C3 TECHEVAL	3	2019	3	2019
Freedom Variant (FV) ASW integration and Testing: ASW MP OT-C3	4	2019	4	2019
Freedom Variant (FV) ASW integration and Testing: ASW IOC	4	2019	4	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2551 / *Anti-Submarine Warfare (ASW) Mission Package*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Independent Variant (IV) ASW Integration and Testing: ASW Mission Package SCD/ SID development for Independence	2	2019	4	2019
Independent Variant (IV) ASW Integration and Testing: ASW MP DT-B6 Phase 1	2	2020	2	2020
Independent Variant (IV) ASW Integration and Testing: ASW MP DT-B6 Phase 2	3	2020	3	2020
Independent Variant (IV) ASW Integration and Testing: ASW MP OT-C6	4	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 2552 / *Surface Warfare (SUW) Mission Package*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2552: *Surface Warfare (SUW) Mission Package*	0.000	0.000	0.000	11.368	-	11.368	1.558	0.000	0.000	0.000	0.000	12.926
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 443

A. Mission Description and Budget Item Justification

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.

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 comprised of several 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 comprised of two high velocity 30mm cannons and is augmented with the ship's 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 M299 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Surface Warfare (SUW) Mission Modules	0.000	0.000	11.368	0.000	11.368
Articles:	-	-	-	-	-
FY 2018 Plans: Funded under project 3129 LCS Mission Package Development.					
FY 2019 Base Plans: Complete IOT&E and establish IOC Q1FY19.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2552 / *Surface Warfare (SUW) Mission Package*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Conduct Find, Fix, Repair efforts of SSMM EDM-2 to resolve issues found during Freedom variant testing and complete test reports. Complete integration of SSMM with Independence variant Combat Management System (CMS), obtain WSESRB/SSSTRP approvals, and IA approvals necessary for formal shipboard testing on Independence variant. Conduct analysis of test objectives and associated Measures of Effectiveness (MOEs) targeted for SSMM testing onboard Independence variant in support of developmental testing. Assess performance envelope capabilities and conduct DOE testing. Conduct a TRACKEX, Structural Test Firing (STF), and a formal Developmental Test event on Independence variant. Integrate SUW SSMM into Common Mission Package Trainer (CMPT) (2.4.4) for Independence variant. Develop and deliver courses and necessary updates to Common Skills, SUW Skills, and SSMM O&M training in support of ready for training in FY 2020. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Prior efforts for SUW are contained in 3129. SUW funding decreased from FY18 to FY19 as developmental efforts are completing and formal testing is beginning.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	11.368	0.000	11.368

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 1600: *LCS Common Mission Module Equipment*	14.670	34.666	46.732	-	46.732	51.553	36.657	55.776	29.787	734.284	1,427.898
• 1603: *LCS SUW Mission Module*	21.064	52.960	26.006	-	26.006	26.566	15.342	15.711	52.511	5.104	315.024
• 4221: *LCS Module Weapons*	2.776	13.110	11.350	-	11.350	14.585	14.417	13.825	14.103	37.555	121.721

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2552 / *Surface Warfare (SUW) Mission Package*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

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.

E. Performance Metrics

Program Completed Milestone B January 2014
Complete SUW MP DT, TECHEVAL, and IOT&E on Freedom variant
Complete SUW MP DT, TECHEVAL, and IOT&E on Independence variant

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2552 / *Surface Warfare (SUW) Mission Package*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
3.0 SUW MP	MIPR	JAMS PO : Various	0.000	0.000		0.000		1.350	Jan 2019	-		1.350	0.000	1.350	-
3.0 SUW MP	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		5.098	Nov 2018	-		5.098	0.000	5.098	-
3.0 SUW MP	C/CPIF	Northrop Grumman : Bethpage, NY	0.000	0.000		0.000		0.800	Dec 2018	-		0.800	0.000	0.800	-
		Subtotal	0.000	0.000		0.000		7.248		-		7.248	0.000	7.248	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
3.0 SUW MP	Sub Allot	NSWC PHD : Port Hueneme, CA	0.000	0.000		0.000		2.720	Nov 2018	-		2.720	0.000	2.720	-
3.0 SUW MP	WR	NSWC Corona : Corona, CA	0.000	0.000		0.000		0.950	Jan 2019	-		0.950	0.000	0.950	-
		Subtotal	0.000	0.000		0.000		3.670		-		3.670	0.000	3.670	N/A

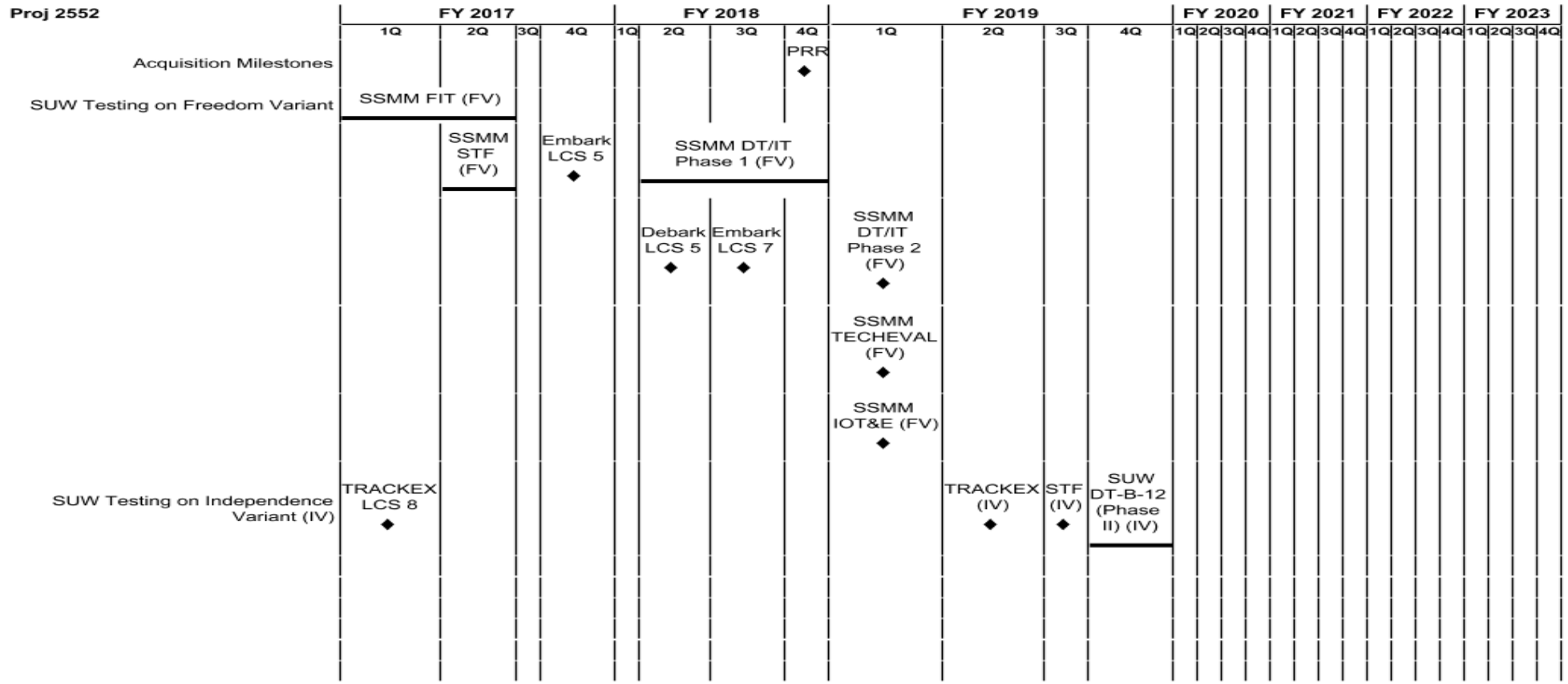
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
3.0 SUW MP	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.000		0.450	Jan 2019	-		0.450	0.000	0.450	-
		Subtotal	0.000	0.000		0.000		0.450		-		0.450	0.000	0.450	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		11.368		-		11.368	0.000	11.368	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2552 / *Surface Warfare (SUW) Mission Package*



2019PB - 0603596N - 2552

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 2552 / *Surface Warfare (SUW) Mission Package*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2552				
Acquisition Milestones: Production Readiness Review	4	2018	4	2018
SUW Testing on Freedom Variant: Surface-to-Surface Missle Module Functional Integration Test (FIT) (Free Var)	1	2017	2	2017
SUW Testing on Freedom Variant: SSMM Structural Test Fire (STF) (Free Var)	2	2017	2	2017
SUW Testing on Freedom Variant: Embark on LCS 5	4	2017	4	2017
SUW Testing on Freedom Variant: SSMM DT / IT Phase 1 (Free Var)	2	2018	4	2018
SUW Testing on Freedom Variant: Debark on LCS 5	2	2018	2	2018
SUW Testing on Freedom Variant: Embark LCS 7	3	2018	3	2018
SUW Testing on Freedom Variant: SSMM DT / IT Phase 2 (Free Var)	1	2019	1	2019
SUW Testing on Freedom Variant: SSMM TECEVAL (Free Var)	1	2019	1	2019
SUW Testing on Freedom Variant: SSMM IOT&E (Free Var)	1	2019	1	2019
SUW Testing on Independence Variant (IV): FIT Check & TRACKEX	1	2017	1	2017
SUW Testing on Independence Variant (IV): TRACKEX	2	2019	2	2019
SUW Testing on Independence Variant (IV): Structual Test FIre (STF)	3	2019	3	2019
SUW Testing on Independence Variant (IV): SUW Development Testing DT-B12	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*				Project (Number/Name) 3129 / *LCS Mission Package Development*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
3129: *LCS Mission Package Development*	371.619	153.595	116.871	8.899	-	8.899	10.311	9.356	9.254	9.410	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 443

A. Mission Description and Budget Item Justification

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.

FY 2018 and Prior:
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 comprised of several 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 comprised of two high velocity 30mm cannons and is augmented with the ship's 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 M299 launchers to support load out and firing of 24 longbow hellfire missiles. SSMM provides missile coverage for mid-range threats and small boats.

The ASW MP enables LCS to conduct detect-to-engage operations against modern submarines that pose a threat. 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 Light Weight Tow torpedo countermeasure, a Variable Depth Sonar, and a Multi-Function Towed Array. These individual systems are combined into three modules: Torpedo Defense Module; an ASW Escort Mission Module that provides High value unit escort capability; and an Aviation Module that offers airborne threat localization and engagement capability through a MQ-8B Fire Scout VTUAV and an MH-60R with MK54 torpedoes.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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The LCS Mine Countermeasures (MCM) MP will counter deep, shallow, and tethered mines in the littoral 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 and deep-water sea mine threats. The MCM MP provides these capabilities through the use of sensors and weapons deployed from an MH-60S multi-mission helicopter, unmanned off-board vehicles, and support equipment/containers. The MCM MP consists of the following modules:
- Remote Minehunting (RMH) Module: MCM Unmanned Surface Vehicle (MCM USV) + AN/AQS-20 Minehunting Sonar
- Coastal Mine Reconnaissance (CMR) Module: Coastal Battlefield Reconnaissance & Analysis (COBRA) + MQ-8B Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV)
- Near Surface Detection (NSD) Module: Airborne Laser Mine Detection System (ALMDS) + MH-60S Helicopter
- Airborne Mine Neutralization (AMN) Module: Airborne Mine Neutralization System (AMNS) + MH-60S Helicopter
- Unmanned Minesweeping (UMS) Module: Unmanned Influence Sweep System (UISS) (MCM USV + Unmanned Surface Sweep System)
- Buried Minehunting (BMH) Module: Knifefish Unmanned Underwater Vehicle (UUV)

The RMH Module provides sustained mine hunting and clearing from the surface, the UMS Module provides endurance bottom sweep capability, the CMR Module will allow detection of minefield patterns and obstacles from an embarked Fire Scout VTUAV in the beach zone, and the BMH Module will allow detection of buried mines. When complete, the MCM MP will provide full capability against floating, tethered, bottom, and buried mines.

FY 2019 funding includes:

The LCS MM Common Equipment consists of enabling products required by all MPs 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 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 (MP-PCS) 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Mine Countermeasure (MCM) Mission Package	38.892	21.852	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: For the Mine Countermeasures (MCM) Mission Package (MP), certify Airborne Mine Neutralization (AMN) and Near Surface Detection (NSD) Modules and employ on LCS Independence variant. Commence integration of AN/AQS-20C and MCM USV+hunt into MCM MP.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
For the MCM MP Coastal Mine Reconnaissance (CMR) module, complete at-sea Developmental Testing (DT) and COBRA Operational testing (OT) on Independence Variant. Conduct CMR cyber testing. Certify CMR module and employ on LCS Independence variant. Integrate CMR Post Mission Analysis (PMA) workstation on Freedom Variant. Modify Mission Package Application Software (MPAS) 1.7.0.0 software incorporating correction of software Problem Trouble Reports (PTRs) identified during CMR DT. For the MCM MP Unmanned Mine-sweeping (UMS) Module, integrate Unmanned Influence Sweep System (UISS) into MCM MP. Conduct Independence variant Launch and Recovery (L&R) capture line mechanism testing. Conduct UISS testing into MCM MP. Deliver MPAS 2.0.0.0. In support of MCM MP, commence development of MCM MPAS build 3.0.0.0 incorporating Net-Centric Sensor Analysis for MIW (NSAM) software and Cyber-security Toolkit (CSTK). Perform systems engineering (risk management, information assurance, human systems integration, safety), configuration management and Integrated Logistics Support. Develop common Post Mission Analysis hardware for Organic Post Mission Analysis (OPMA), NSAM, COBRA and Knifefish PMA. Continue to compile system and package level Reliability and Maintainability (RAM-C) data to support reliability engineering and a prioritized initial spares list. Perform Full Operational Capability (FOC) RAM-C analysis with updated data and update RAM-C Rationale Report. Continue MCM MP FRACAS effort. ***FY 2019 Base Plans:*** Funded under Project Unit (PU) 2550 for FY 2019. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY19 efforts have been moved to Project 2550					
Title: Anti-Submarine Warfare (ASW) Mission Package	29.541	49.868	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: FY 2018 plan updated to reflect programmatic changes due to the competitive award of the Escort Mission Module development and production contract. The contract was still under evaluation at the time of the PB18 submit and the program was unable to document the schedule forward until the down-select was complete. The following reflects those changes.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Perform systems engineering (risk management, information assurance, human systems integration, safety), configuration management and Integrated Logistics Support. Continue to compile system and package level Reliability and Maintainability (RAM-C) data to support reliability engineering and a prioritized initial spares list. Perform Full Operational Capability (FOC) RAM-C analysis with updated data and update RAM-C Rationale Report. Continue ASW MP FRACAS effort. Continue development of ASW MP operator training materials and course curriculum to support Train to Qualify and Train to Certify requirements. Continue development of component and system level modeling and simulation capabilities to enable high fidelity virtual reality training. Deliver Operations and Maintenance and fundamental courseware to LCS Training Facility. Continue Factory training events in support of formal courseware development. ASW Mission Package Engineering Reviews: 1.) Close-out ASW MP Preliminary Design Review (PDR) by completing engineering efforts to resolve or adjudicate critical Request for Actions (RFA). 2.) Prepare detailed Technical Data package (TDP) to support ASW MP Critical Design Review (CDR) event. Conduct CDR and close-out ASW MP CDR by completing efforts to resolve or adjudicate critical Request for Actions (RFA). Prepare to deliver and install Escort Mission Module (EMM) on LCS 3 and prepare for formal ASW MP testing which will begin in FY 2019: 1.) Continue development of EMM Pre-Production Test Article (PPTA) through contractor level testing on EMM contract. Participate in EMM design reviews and feasibility testing to verify performance. Continue ship integration activities required to enable hardware installation of EMM equipment onboard LCS platforms. 2.) Exercise EMM contract Integration and Testing Support CLIN in support of ship and mission module Integration, Testing, Validation and Verification (V&V), Certification and Delivery. 3.) Oversee and support execution of shipboard industrial work in accordance with ASW MP Ship Alteration Permanent Change (SHIPALT/PC) Technical Data Package (TDP) and any additional MM installation ECPs					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
as necessary to support ASW MP Installation and deployment on LCS. Complete SHIPALT/PC for Freedom variant and initiate development of SHIPAL/PC for Independence variant. 4.) Finalize safety analysis of the ASW equipment on the Freedom variant and begin detailed safety analyses on the Independence variant. Conduct ASW MP Weapon System Explosives Safety Review Board (WSESRB) to support ASW MP certification to be conducted in FY 2019 to support formal test on Freedom variant. 5.) Finalize testing objectives, performance prediction modeling, and test plans to support the execution of an ASW MP developmental and operational testing of the ASW MP on Freedom variant in FY 2019. 6.) Conduct mission module and mission package level integration testing, including events at PAX River SAIL for Aviation integration, Combat Management System (CMS) integration and performance validation testing in support of ASW MP. 7.) Plan and conduct ASW MP Land Based and at-sea end-to-end (E2E) integration testing on Freedom variant hull to include ASW MP and combat system performance validation testing. 8.) Complete EMM acoustic processing software and hardware (ACB13L software and TI14 hardware), Aviation integration support software, and Command and Control software development to support software certification in FY 2019 to support formal developmental and operational testing. Initiate development of ACB19/TI18 to support production buys. Complete development and install Torpedo Defense Module on Freedom Variant: 1.) Integrate Torpedo Defense Module (Light Weight Tow) EDM units onto each LCS variant with Class I (PCW/ SCD) changes. Complete installation of equipment on LCS 1 and LCS 3. 2.) Conduct initial integration and proof of performance testing of the Light Weight Tow system. Testing to be performed aboard LCS platforms at the Canadian Fleet Maritime Experimental Testing Range (CFMETR) against instrumented torpedoes. 3.) Develop production data package for Torpedo Defense Module to support a production contract RFP and award in FY 2019.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Develop the products necessary for mission package turnover to sustainment, such as Provisioning Technical Documents, Class Maintenance Plan (CMP), Diminishing Manufacturing Sources/Material Sources (DMSMS) Plan, embark/debark procedures, Consolidated Shipboard Allowance List (COSAL), Navy Training System Plan (NTSP), and Depot Source of Repair (DSOR). ***FY 2019 Base Plans:*** Funded under Project Unit (PU) 2551 for FY 2019. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Effort beyond FY18 are funded under Project Unit (PU) 2551.					
Title: Surface Warfare (SUW) Mission Package	42.552	17.647	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: Continue to conduct combat system certification, MP certification, obtain WSESRB/SSSTRP approvals, and IA approvals in for completion of formal shipboard test events. Start formal shipboard Developmental Testing DT/IT-B11 (Phase I) on LCS 5 and after debarking from LCS 5 and embarking on LCS 7 the project will complete DT/IT-B11 (Phase I), complete all test planning and procedures for DT-C11 (TECHEVAL), and Operational Testing OT-C11 (IOT&E) in support of testing in Q1FY19. In support of transitioning SSMM to production in FY18, the project will conduct System Qualification Testing (SQT), System Verification Review (SVR), Functional Configuration Audit (FCA), Physical Configuration Audit (PCA), validate sonar acoustic performance, validate shipboard interfaces, validate launch, handling and recovery, and conduct embarks and debarks. The project will conduct a Production Readiness Review (PRR) in Q4FY18. Complete FMECA, LORA, and MTA associated with maturity levels of development EDM-2. Complete RCM analysis for finalizing MIPs, MRCs upon finalizing EDM to contribute to development of Technical Manuals. Conduct Reliability, Maintainability, and Availability efforts in support of Freedom variant IOC. Conduct ILS support efforts in support of Freedom variant to include SSMM Provisioning, Supply Support, PHS&T, Preliminary AL, APL, CSOSS, data management and delivery of preliminary EOD 60 series manual. Finalize SSMM development, verification, validation and delivery of final tech manuals. Continue to develop I-level					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Technical Manual for Incr. III SSMM, M299 and MECS. Develop SSMM Embark/Debark plan. Continue development of SSMM Operations and Maintenance Technical Manual. Continue development of SSMM facilities requirements. Complete PHS&T plan update with SSMM data. Complete SSMM O&M Training plan and update course development. Finalize M299 TM in compliance with O and I level requirements. Complete SERD, including I level requirements. Complete SSMM facilities requirements. Finalize all loading procedures/methods. Integrate SSMM into Common Mission Package Trainer (CMPT) (2.4.4) for Freedom variant. Develop and deliver courses and necessary updates to Common Skills, SUW Skills, and SSMM O&M in support of ready for training. Continue PR resolution and analysis of GD ROM in support of SSMM integration of ICMS aboard Independence Variant Continue to compile system and package level Reliability and Maintainability (RAM-C) data to support reliability engineering and a prioritized initial spares list. Perform FOC RAM-C analysis with updated data and update RAM-C Rationale Report. Continue SUW MP FRACAS effort. ***FY 2019 Base Plans:*** Funded under Project Unit (PU) 2552 for FY 2019. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Effort beyond FY18 are funded under Project Unit (PU) 2552					
Title: Command, Control, Communication, Computers, Cyber and Intelligence (C5I) and Mission Package Tactical Team Trainers	8.554	10.082	8.899	0.000	8.899
Articles:	-	-	-	-	-
FY 2018 Plans: Mission Package Computing Environment (MPCE): Continue to conduct MPCE Modernization and Technology Refresh efforts. Conduct Formal MPCE v1.10 Critical Design Review (CDR) and factory training. Conduct MPCE grooming to support MCM, ASW and SUW MP test events. Transition to a common Mission Package Operating Environment (MPOE) / Mission Package Services (MPS) software baseline.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Finalize Program Protection Plan. Conduct Maintenance Demonstration (M-DEMO) to validate the effectiveness and execution performance of the delivered technical documentation and the Maintenance planning products. Multi Vehicle Communications System (MVCS): Finalize and deliver the MVCS v1.2 baseline resulting in an ECP and SCD package. Continue on the design and development of MVCS v1.2.X to implement the CDS hardware replacement due to the existing solution reaching end of life and the implementation of the IPS-250 Inline Encryptor. Support efforts to implement crypto and the replacement CDS on Unmanned Influence Sweep System (UISS) and Knifefish Unmanned Undersea Vehicle. Groom MVCS v1.2 for integration and perform pre-integration activities aboard the Freedom variant LCS 3 in preparation for MVCS v1.2 installation in support of UISS testing. Develop and install solution to provide SIPRNet access aboard the Freedom variant. Finalize development and complete the Seminal Transition Event test to close out the RT-1944A/U Rapid Innovation Fund project. Continue development efforts of the Beyond Line of Site (BLOS) capability provided by the High Frequency Ground Wave (HFGW) system to include integrating the HFGW into the MVCS. Perform Topside Analysis of both LCS variants to determine antenna location and performance in support of the HFGW system. Complete the Spectrum Supportability Risk Assessment for implementing the HFGW on the ship. Continue development on the Extended Line of Site (ELOS) solution Unmanned Aerial Relay (UMAR) Rapid Innovation Fund effort. Continue development of the Anti-Jam MAGIC SHIELD solution for integration into the RT-1944A/U. Perform an analysis to determine the amount of bandwidth required for remote mine hunting at various operating distances. Begin efforts to define and develop MVCS v1.3. Continue to conduct Tech Refresh/Insertion studies needed to sustain incremental MVCS capability upgrades. Provide curriculum development for the MVCS v1.2 baseline. Provide differences training on MVCS to fleet and curriculum updates for Combat Systems courses. Common Mission Package Trainer (CMPT): Complete incremental update to integrate MCM MP Coastal Mine Reconnaissance (CMR) Module and SUW Surface-to-Surface Missile Module (SSMM) capabilities into CMPT. Complete integration of updated software with Freedom and Independence Combat Management System Trainers and conduct standalone and integrated team training at LTF for detachments. Begin update to integrate MCM Unmanned Sweep Module and Remote Minehunting Module capabilities into CMPT. Begin update to integrate ASW Escort Mission Module, Torpedo Defense Module, and Aviation Module capabilities into CMPT.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue to compile system data to support Reliability and Maintainability (RAM-C) data to support reliability engineering and analysis. Begin FRACAS effort.					
FY 2019 Base Plans: Finalize the design and development of MVCS v1.2.X to implement the CDS hardware replacement due to the existing solution reaching end of life and the implementation of the IPS-250 Inline Encryptor. Complete development to update the Ship Configuration Agent (SCA) as part of the MVCS 1.2.X baseline due to integration with the Knifefish, UISS and MCM USV. Finalize the development of the Anti-Jam MAGIC SHIELD solution for procurement and integration into the RT-1944A/U. Complete development required to support the MVCS v1.2.X for Integration Test. Continue development efforts of the Beyond Line of Site (BLOS) capability provided by the High Frequency Ground Wave (HFGW) system to include beginning the fabrication of 3 Engineering Development Models (EDMs), adding Emission Control (EMCON), providing spectrum and topside analysis support, begin adaptive noise cancelling firmware development, complete Performance Monitor Fault Location (PMFL) and Built In Test (BIT) design and implementation, conduct an Electromagnetic Interference (EMI) test, perform an initial Anti?Jam antenna and signal assessment, begin test fixture software for production, provide support for MVCS/Seaframe integration and CDS rule-set reprogramming, initiate Freedom variant and USV/UISS Noise assessment, and conduct an Engineering Sea test. Continue development on the Extended Line of Site (ELOS) solution Unmanned Aerial Relay (UMAR) Rapid Innovation Fund effort. Continue to conduct Tech Refresh/Insertion studies needed to sustain incremental MVCS capability upgrades.					
Develop MVCS differences training and deliver for inclusion in LCS Combat Systems courses.					
Common Mission Package Trainer (CMPT): Update CMPT to integrate MCM Unmanned Sweep Module, Remote Minehunting Module, and begin integration of Buried Minehunting Module capabilities. Complete update to incorporate ASW Escort Mission Module, Torpedo Defense Module, and Aviation Module capabilities. Continue to integrate updated software with Freedom and Independence variant Combat Management System Trainers and conduct standalone and integrated team training at LTF for detachments.					
Continue to compile system data to support Reliability and Maintainability (RAM-C) data to support reliability engineering and analysis. Continue FRACAS effort.					
FY 2019 OCO Plans:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY18 MPCE transitioned to Sustainment.					
Title: System Engineering and Program Acquisition	34.056	17.422	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: Systems Engineering Efforts: Support all major planned systems engineering events per the LCS Mission Modules Systems Engineering Plan (SEP) for all modules within the three warfare areas (Surface Warfare, Anti-Submarine Warfare, and Mine Countermeasures Warfare). Continue to develop and implement process to track lead/lag systems engineering metrics to include requirements, Requirements Traceability & Verification Matrix (RTVM), and SRLs and continued to implement the Technical Performance Measurement (TPM) Plan. Continue to maintain and execute Cyber Security Strategy. Program Management Efforts: Conduct business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering. Common Training Management Efforts: Continue executing four training Integrated Project Teams (IPTs): MCM, SUW, ASW, and Common systems. Continued development of training and training systems for MCM, ASW, and SUW Mission Module Sailors in accordance with Navy Training Support Plan (NTSP). Begin incorporation of SUW Surface-to-Surface Missile Module capability into LCS Training Facility (LTF) training courses to meet SUW MP Train to Certify (T2C) requirement and achieve Ready for Training (RFT) in FY 2020.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Begin development of ASW MP Escort Mission Module and Torpedo Defense capabilities into LTF training courses to meet ASW MP T2C requirement and achieve RFT in FY 2020. Begin incorporation of MCM Buried Minehunting, Unmanned Sweep, and Remote Minehunting Module capabilities into LTF training courses to meet MCM MP T2C requirement and achieve RFT in FY 2021. Perform vendor and interim training in preparation for deployment. Perform analysis of training to validate effective training delivery and updated formal curriculum to incorporate findings from program test events, operations and classroom experience to deliver training that will achieve Train to Certify KPP. Continue to integrate LCS MM program training with LCS platform program training. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Beginning in FY19, all systems engineering and program management efforts have been aligned to the specific mission packages (Project 2550 for MCM, Project 2551 for ASW, and Project 2552 for SUW).					
Accomplishments/Planned Programs Subtotals	153.595	116.871	8.899	0.000	8.899

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 1600: *LCS Common Mission Modules Equipment*	14.670	34.666	46.732	-	46.732	51.553	36.657	55.776	29.787	734.284	1,427.898
• 1601: *LCS MCM Mission Modules*	29.724	55.870	124.147	-	124.147	204.324	245.108	227.068	234.109	1,403.599	2,673.330
• 1602: *LCS ASW Mission Modules.*	0.000	0.000	57.294	-	57.294	52.754	63.181	34.104	34.777	142.398	384.508
• 1603: *LCS SUW Mission Modules*	21.064	52.960	26.006	-	26.006	26.566	15.342	15.711	52.511	5.104	315.024
• 4221: *LCS Module Weapons*	2.776	13.110	11.350	-	11.350	14.585	14.417	13.825	14.103	37.555	121.721

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

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.

E. Performance Metrics

Program Completed Milestone B January 2014
Complete SUW MP DT, TECHEVAL, and IOT&E on Freedom variant
Achieve SUW MP Initial Operational Capability (IOC) on Freedom variant
Achieve MCM MP IOC on Independence variant (Refer to Project Unit 2550)
Achieve ASW MP IOC on Freedom variant (Refer to Project Unit 2551)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
6.1 System Engineering	WR	NSWC PCD : Panama City, FL	0.000	0.000		0.275	Oct 2017	0.000		-		0.000	0.000	0.275	-
6.1 System Engineering	WR	NSWC DD : Dahlgren, VA	0.000	1.031	Nov 2016	0.753	Oct 2017	0.000		-		0.000	0.000	1.784	-
6.1 System Engineering	WR	NAVSEALOGCEN : Norfolk, VA	0.731	0.620	Dec 2016	0.169	Jan 2018	0.000		-		0.000	0.000	1.520	-
6.1 System Engineering	C/CPFF	Northrop Grumman : Bethpage, NY	9.210	4.225	Dec 2016	1.107	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
6.1 System Engineering	WR	NSWC Carderock : Bethesda, MD	1.530	1.000	Nov 2016	0.080	Dec 2017	0.000		-		0.000	0.000	2.610	-
6.1 System Engineering	WR	NSWC PHD : Port Hueneme, CA	1.108	0.350	Jan 2017	0.110	Dec 2017	0.000		-		0.000	0.000	1.568	-
6.1 System Engineering	WR	SPAWAR PAC : San Diego, CA	5.931	1.500	Dec 2016	0.229	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
6.1 System Engineering	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.355	Jan 2018	0.000		-		0.000	0.000	0.355	-
6.4 Integration, Assembly, Test and Checkout	Sub Allot	CECOM Bldg 1207 : Various	0.842	0.250	Feb 2017	0.000		0.000		-		0.000	0.000	1.092	-
6.4 Integration, Assembly, Test and Checkout	WR	NAWC AD : Patuxent River, MD	0.300	0.950	Mar 2017	0.680	Jan 2018	0.000		-		0.000	0.000	1.930	-
6.4 Integration, Assembly, Test and Checkout	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.203	Oct 2017	0.000		-		0.000	0.000	0.203	-
6.4 Integration, Assembly, Test and Checkout	WR	NSWC PC : Panama City, FL	0.000	0.000		0.075	Oct 2017	0.000		-		0.000	0.000	0.075	-
6.4 Integration, Assembly, Test and Checkout	C/CPFF	Northrop Grumman : Bethpage, NY	1.248	0.250	Jan 2017	0.000		0.000		-		0.000	0.000	1.498	-
6.4 Integration, Assembly, Test and Checkout	WR	NSWC Carderock : Bethesda, MD	6.977	1.000	Dec 2016	0.648	Jan 2018	0.000		-		0.000	0.000	8.625	-
6.4 Integration, Assembly, Test and Checkout	C/CPFF	PMS 501 : Various	0.000	0.000		1.075	Feb 2018	0.000		-		0.000	0.000	1.075	-
6.4 Integration, Assembly, Test and Checkout	WR	SPAWAR PAC : San Diego, CA	0.580	0.750	Jan 2017	0.527	Feb 2018	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
6.4 Integration, Assembly, Test and Checkout	WR	NSWC PHD : Port Hueneme, CA	0.978	0.225	Jan 2017	0.109	Nov 2017	0.000		-		0.000	0.000	1.312	-
6.4 Integration, Assembly, Test and Checkout	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.525	Jan 2017	0.425	Jan 2018	0.000		-		0.000	0.000	0.950	-
6.4 Integration, Assembly, Test and Checkout	WR	NAVAIR : Lakehurst	0.000	0.200	Mar 2017	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	8.254	4.707	Feb 2017	2.302	Mar 2018	2.500	Jan 2019	-		2.500	0.000	17.763	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NAWC TSD : Orlando, FL	0.750	0.000		0.354	Jan 2018	0.550	Dec 2018	-		0.550	0.000	1.654	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	C/CPFF	Northrop Grumman : Bethpage, NY	1.478	0.544	Dec 2016	0.578	Feb 2018	0.990	Jan 2019	-		0.990	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NSWC PC : Panama City, FL	4.322	4.425	Nov 2016	4.123	Dec 2017	2.277	Nov 2018	-		2.277	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NUWC NPT : Newport, RI	1.172	0.402	Dec 2016	0.500	Nov 2017	0.550	Nov 2018	-		0.550	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	1.121	Dec 2016	0.348	Dec 2017	0.820	Dec 2018	-		0.820	0.000	2.289	-
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	SPAWAR PACIFIC : San Diego, CA	2.105	0.694	Dec 2016	1.150	Jan 2018	0.469	Nov 2018	-		0.469	0.000	4.418	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	NSWC DD : Dahlgren, VA	1.504	0.438	Nov 2016	0.727	Nov 2017	0.743	Nov 2018	-		0.743	Continuing	Continuing	Continuing
4.0 Command, Control, Communication, Computers, Collaboration and Intelligence (C5I)	WR	PMW 760 : Various	0.716	0.173	Jan 2017	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	1.000	0.730	Mar 2017	0.000		0.000		-		0.000	0.000	1.730	-
1.0 MCM MP	WR	NSWC PC : Panama City, FL	33.514	23.383	Nov 2016	14.400	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
1.0 MCM MP	Sub Allot	PMS 406 : Various	27.861	11.000	Mar 2017	3.900	Nov 2017	0.000		-		0.000	0.000	42.761	-
1.0 MCM MP	Sub Allot	PMS 495 : Various	0.000	0.000		0.249	Feb 2018	0.000		-		0.000	0.000	0.249	-
1.0 MCM MP	WR	NSWC PHD : Port Hueneme, CA	0.000	0.000		2.300	Dec 2017	0.000		-		0.000	0.000	2.300	-
1.0 MCM MP	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.400	Dec 2017	0.000		-		0.000	0.000	0.400	-
1.0 MCM MP	C/CPFF	Northrop Grumman : Bethpage, NY	0.745	0.544	Dec 2016	0.603	Jan 2018	0.000		-		0.000	0.000	1.892	-
1.0 MCM MP	WR	Various : Various	0.000	1.124	Mar 2017	0.000		0.000		-		0.000	0.000	1.124	-
2.0 ASW MP	Sub Allot	PEO IWS5E : Various	33.620	4.870	Mar 2017	2.604	Dec 2017	0.000		-		0.000	0.000	41.094	-
2.0 ASW MP	WR	NUWC NPT : Newport, RI	16.341	7.422	Dec 2016	13.958	Nov 2017	0.000		-		0.000	0.000	37.721	-
2.0 ASW MP	WR	SSC PAC : San Diego, CA	4.233	0.000		0.734	Dec 2017	0.000		-		0.000	0.000	4.967	-
2.0 ASW MP	WR	CDSA Dam Neck : Virginia Beach, VA	5.112	4.775	Dec 2016	1.258	Nov 2017	0.000		-		0.000	0.000	11.145	-
2.0 ASW MP	C/CPFF	Northrop Grumman : Bethpage, NY	5.147	3.417	Dec 2016	2.350	Feb 2018	0.000		-		0.000	0.000	10.914	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2.0 ASW MP	WR	PEO IWS 5A : Various	0.601	0.000		8.700	Mar 2018	0.000		-		0.000	0.000	9.301	-
2.0 ASW MP	C/CPFF	SPA : Washington, DC	1.187	0.250	Jan 2017	0.250	Apr 2018	0.000		-		0.000	0.000	1.687	-
2.0 ASW MP	WR	NSWC DD : Dahlgren, VA	0.446	0.000		0.425	Dec 2017	0.000		-		0.000	0.000	0.871	-
2.0 ASW MP	WR	NUWC KPT : Keyport, WA	0.595	0.000		0.500	Feb 2018	0.000		-		0.000	0.000	1.095	-
2.0 ASW MP	WR	NSWC PHD : Port Hueneme, CA	0.000	0.000		1.550	Nov 2017	0.000		-		0.000	0.000	1.550	-
2.0 ASW MP	C/FPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.500	Dec 2017	0.000		-		0.000	0.000	0.500	-
2.0 ASW MP	WR	NAWC WD : Point Mugu, CA	2.030	3.000	Feb 2017	0.400	Mar 2018	0.000		-		0.000	0.000	5.430	-
2.0 ASW MP	C/CPFF	Various : Various	0.000	3.307	Feb 2017	0.450	Nov 2017	0.000		-		0.000	0.000	3.757	-
2.0 ASW MP	Sub Allot	Raytheon : Portmouth, RI	31.368	2.500	Mar 2017	16.188	Jan 2018	0.000		-		0.000	0.000	50.056	-
3.0 SUW MP	C/CPFF	JAMS PO : Various	0.000	6.480	Feb 2017	1.500	Mar 2018	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	42.564	15.960	Dec 2016	2.000	Feb 2018	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	0.495	0.250	Jan 2017	0.950	Jan 2018	0.000		-		0.000	0.000	1.695	-
3.0 SUW MP	WR	NSWC DD : Dahlgren, VA	38.019	14.900	Nov 2016	7.397	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
3.0 SUW MP	WR	NSWC PHD : Port Hueneme, CA	22.637	2.000	Jan 2017	5.800	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
3.0 SUW MP	Sub Allot	PEO IWS 3 : Various	7.319	2.500	Feb 2017	0.000		0.000		-		0.000	0.000	9.819	-
		Subtotal	332.792	133.792		106.268		8.899		-		8.899	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
6.5 Training Systems Development	WR	NAWC TSD : Orlando, Fl	0.000	0.555	Jan 2017	0.354	Oct 2017	0.000		-		0.000	Continuing	Continuing	Continuing
6.5 Training Systems Development	WR	NSWC PHD : Port Hueneme, CA	0.000	0.000		0.390	Oct 2017	0.000		-		0.000	0.000	0.390	-
6.5 Training Systems Development	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.268	Dec 2017	0.000		-		0.000	0.000	0.268	-
6.5 Training Systems Development	C/CPAF	Northrop Grumman : Bethpage, NY	0.000	0.000		0.575	Jan 2018	0.000		-		0.000	0.000	0.575	-
6.5 Training Systems Development	Sub Allot	Various : Various	1.520	1.701	Mar 2017	0.000		0.000		-		0.000	0.000	3.221	-
6.5 Training Systems Development	WR	JHU/APL : Laurel, MD	1.479	0.000	Feb 2017	0.000		0.000		-		0.000	0.000	1.479	-
		Subtotal	2.999	2.256		1.587		0.000		-		0.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
6.3 System Test and Evaluation	WR	NSWC PHD : Port Hueneme, CA	18.428	7.820	Jan 2017	1.715	Nov 2017	0.000		-		0.000	0.000	27.963	-
6.3 System Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	2.994	1.300	Mar 2017	0.650	Jan 2018	0.000		-		0.000	0.000	4.944	-
6.3 System Test and Evaluation	WR	NSWC Corona : Corona, Ca	0.000	0.000		0.500	Nov 2017	0.000		-		0.000	0.000	0.500	-
6.3 System Test and Evaluation	WR	SPAWAR PAC : San Diego, CA	3.258	2.000	Dec 2016	0.000		0.000		-		0.000	0.000	5.258	-
6.3 System Test and Evaluation	C/CPIF	Booz Allen Hamilton : Washington, DC	0.000	0.000		0.750	Jan 2018	0.000		-		0.000	0.000	0.750	-
		Subtotal	24.680	11.120		3.615		0.000		-		0.000	0.000	39.415	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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	0.000	1.937	Nov 2016	2.758	Dec 2017	0.000		-		0.000	0.000	4.695	-
6.2 Program Management	FFRDC	Mitre : McLean, VA	1.379	1.300	Jan 2017	0.000		0.000		-		0.000	0.000	2.679	-
6.2 Program Management	FFRDC	JHU/APL : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
6.2 Program Management	C/CPFF	Northrop Grumman : Bethpage, NY	2.071	1.440	Dec 2016	1.466	Feb 2018	0.000		-		0.000	0.000	4.977	-
6.2 Program Management	C/CPFF	NSWC Crane : Various	0.000	1.750	Dec 2016	1.177	Nov 2017	0.000		-		0.000	0.000	2.927	-
		Subtotal	11.148	6.427		5.401		0.000		-		0.000	0.000	22.976	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	371.619	153.595		116.871		8.899		-		8.899	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.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

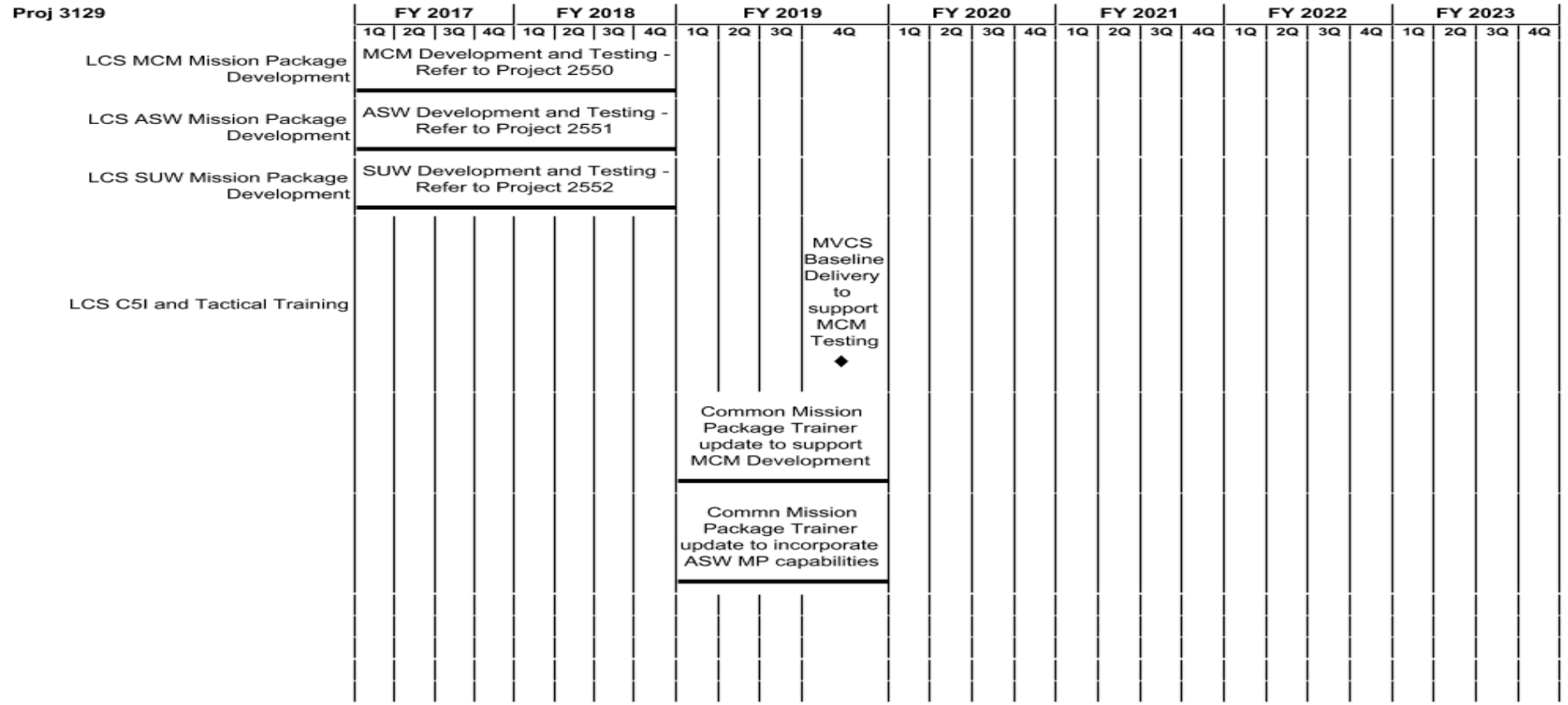

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3129				
LCS MCM Mission Package Development: LCS MCM Mission Package Development	1	2017	4	2018
LCS ASW Mission Package Development: LCS ASW Mission Package Development	1	2017	4	2018
LCS SUW Mission Package Development: LCS SUW Mission Package Development	1	2017	4	2018
LCS C5I and Tactical Training: MVCS Baseline Delivery to support MCM MP Testing	4	2019	4	2019
LCS C5I and Tactical Training: Common Mission Package Trainer update to support MCM Development	1	2019	4	2019
LCS C5I and Tactical Training: Commn Mission Package Trainer update to incorporate ASW MP capabilities	1	2019	4	2019