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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	1,446.434	80.254	76.364	32.615	-	32.615	70.361	67.297	62.064	63.185	Continuing	Continuing
3096: <i>Littoral Combat Ship</i>	1,383.541	74.882	74.966	31.688	-	31.688	69.419	66.370	61.156	62.259	Continuing	Continuing
4506: <i>LCS Training</i>	62.893	5.372	1.398	0.927	-	0.927	0.942	0.927	0.908	0.926	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 374

A. Mission Description and Budget Item Justification

The Littoral Combat Ship (LCS) Program Element (PE) provides funds for detailed design, development, construction, issue resolution, certification, integration, and testing of the Littoral Combat Ship (LCS). LCS operates with focused-Mission Packages that deploy manned and unmanned vehicles to execute a variety of missions, including, Surface Warfare (SUW) and Mine Countermeasures (MCM). LCS also possesses inherent capabilities, regardless of the Mission package installed, including intelligence/surveillance/reconnaissance (ISR), LCS SUW will also include Maritime Interdiction/interception Operations (MIO), Anti-Terrorism/Force Protection (AT/FP), air warfare self-defense, joint littoral mobility and logistic support for movement of personnel and supplies. This relatively small, shallow-draft, high-speed surface combatant complements the U.S. Navy's Surface Fleet by operating in environments where it is impossible or undesirable to employ larger, deeper-draft, multi-mission ships. LCS can deploy independently to overseas littoral regions or remain on station for extended periods of time either with a battle group or through a forward-basing arrangement. LCS will operate with Carrier Strike Groups, Surface Action Groups, or independently as dictated by the mission and environment. Additionally, LCS can operate cooperatively with the U.S. Coast Guard and Allies.

This PE also provides funds for the design, development, engineering, implementation, and testing of the combat system modifications for Lethality and Survivability (L&S) for both LCS variants (Independence and Freedom). The L&S upgrades include the development of a common Combat Management System (CMS) and integration and testing of government furnished systems including the Gun Weapon System (GWS), Electronic Warfare (EW) system and Decoy Launching System (DLS) for both LCS Class Variant ships.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	82.518	96.444	43.574	-	43.574
Current President's Budget	80.254	76.364	32.615	-	32.615
Total Adjustments	-2.264	-20.080	-10.959	-	-10.959
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-20.080			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.264	0.000			
• Program Adjustments	0.000	0.000	-11.533	-	-11.533
• Rate/Misc Adjustments	0.000	0.000	0.574	-	0.574

Change Summary Explanation

FY2024 funding request for project 3096 was decreased by \$10.851 for execution adjustments.
 FY2024 funding request was decreased by \$.108 rate/miscellaneous adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3096: <i>Littoral Combat Ship</i>	1,383.541	74.882	74.966	31.688	-	31.688	69.419	66.370	61.156	62.259	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 374

A. Mission Description and Budget Item Justification

The RDT&E portion of the LCS Program comprises design and development efforts required to field the LCS Class Ships, including integration with the Mission Packages (MCM and SUW) activities both pre- and post-delivery. It includes the design and development effort required to support the introduction and deployment of a Flight 0+ baseline (LCS 3/4 and Follow) with incorporation of lessons learned from the design and construction of USS FREEDOM (LCS 1) and USS INDEPENDENCE (LCS 2). Additionally, it includes design, development, issue resolution, certification and testing efforts required to support the design baseline for the six year block buy in FY10-15. This baseline includes lessons learned from the LCS 1 through LCS 4.

The LCS design and development phases include platform design and development, experimentation, ship system design and integration, hull platform testing, development of Technical Data Packages (TDPs), total ship system engineering and integration, combat systems and warfare systems certification, and planning and conduct of system testing. These efforts include procurement of combat and warfare system elements and/or simulators to support production representative testing in support of design, development, and certification efforts and ordnance in support of testing.

The RDT&E portion of LCS funding also comprises formal Developmental and Operational Assessment testing of the LCS Ships and Mission Packages. Test and Evaluation (T&E) will concentrate on verifying integration and interoperability of employed technologies and systems in the LCS seaframe designs and modular mission packages to achieve the mission capabilities and performance requirements as defined in the LCS program's Flight 0 and Flight 0+ Capabilities Development Documents (CDD). T&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP) for the core seaframe and the focused missions.

This budget provides funds for the design, development, engineering, implementation, and testing of the combat system modifications for Lethality and Survivability (L&S) for both LCS variants (Independence and Freedom). The L&S upgrades include the development of a common Combat Management System (CMS) and integration and testing of government furnished systems including the Gun Weapon System (GWS), Electronic Warfare (EW) system, and Decoy Launching System (DLS) for both LCS Class Variants (Independence and Freedom) ships. Without funding for L&S trainer upgrades, sailors on ships with L&S configuration will not be trained on the L&S configuration in our trainers.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: LCS Lethality and Survivability	74.882	74.966	31.688	0.000	31.688
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Description: Provides engineering support to develop a common combat management system, leveraging a common source library, for installation on both LCS variants (Independence and Freedom). The Combat Systems baseline will be compatible with Program of Record (PoR) combat systems replacing Contractor Furnished Equipment (CFE) and integrate Over the Horizon (OTH) missile system. Funding includes logistic product development, Engineering Change Proposals (ECPs), ship structural analysis, development of an integrated test plan and cyber analysis to accomplish Risk Management Framework authorization.</p> <p>FY 2023 Plans: Verification and testing for the first L&S Phase 1 installations in FY24. Initial L&S Phase 2 studies will be conducted analyzing enhanced fire control radar solution, potential mission package integration to the CMS, improved top-side radars, as well as enhanced lethality in support of Distributed Maritime Operations.</p> <p>FY 2024 Base Plans: Finalize verification and testing for the first L&S Phase 1 installations in FY24. Continue L&S Phase 2 studies for analysis of enhanced fire control radar solution, potential mission package integration to the CMS, improved top-side radars, as well as enhanced lethality in support of Distributed Maritime Operations.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The reduction in FY 2024 of \$43.359M delays the finalization of design and development efforts verification and testing of the Combat System baseline for L&S Phase 1 installations.</p>					
Accomplishments/Planned Programs Subtotals	74.882	74.966	31.688	0.000	31.688

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• SCN/2127: <i>LCS Ship</i>	44.860	67.801	23.000	-	23.000	0.000	0.000	0.000	0.000	0.000	16,865.635
• 1604: <i>LCS In-Service Modernization</i>	35.183	27.243	89.543	-	89.543	68.083	101.051	129.912	147.010	Continuing	Continuing

Remarks
BLI 1604 supports Lethality and Survivability efforts on the LCS Ships

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy Date: March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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D. Acquisition Strategy

The LCS program takes an evolutionary approach to acquisition that emphasizes competition as a key to achieving affordability. Initially, two industry teams competed against each other with two distinctly different LCS designs. The decision produced two flights with a vessel from each design: Flight 0 (LCS 1 and LCS 2); and Flight 0+ (LCS 3 and out). The Flight 0+ baseline incorporates lessons learned from the design, construction, and testing of the Flight 0 ships. The Navy conducted a limited competition amongst the existing LCS industry teams or team participants for the award of a contract for the construction of a block buy of up to ten (10) LCS Flight 0+ Class ships, with an objective of competitively awarding a single contract to a single industry team.

By Acquisition Decision Memorandum of December 23, 2010, the USD (AT&L) authorized execution of an alternative acquisition strategy for the FY 2010 through FY 2015 procurement of 20 seaframes through two ten-ship block buy contracts. On December 29, 2010, the Navy awarded two contracts for block buys of up to ten ships, beginning with the award to each contractor of one FY 2010 ship and associated non-recurring engineering, the development of the Technical Data Package (TDP), core class services, and associated data. This was followed by the contractual funding of one ship to each contractor in FY 2011 and two ships each funded in FY 2012 through FY 2014.

On October 17, 2014 USD (AT&L) approved the Navy's plan to procure three ships in FY 2015 and three ships in FY 2016 by modifying the current block buy contracts. The modification to each of the block buy contracts completed the previously approved 20 ship block buy procurement and added options for two FY 2016 ships for a total of 26 LCS ships. The Navy's Acquisition strategy supported the procurement of three LCS ships in FY17, FY18, and FY19.

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
L&S Product Development	SS/CPIF	LM : Moorestown, NJ	12.850	48.012	Nov 2021	21.787	Oct 2022	10.000	Oct 2023	-		10.000	Continuing	Continuing	Continuing
Product Development Summary	Various	Various : Various	479.868	0.000		0.000		0.000		-		0.000	0.000	479.868	-
Subtotal			492.718	48.012		21.787		10.000		-		10.000	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support	WR	NSWC/DD : Dahlgren, VA	76.963	0.000		0.000		0.000		-		0.000	0.000	76.963	-
Government Engineering Support	WR	NSWC/PC : Panama City, FL	27.987	0.000		0.000		0.000		-		0.000	0.000	27.987	-
Government Engineering Support	WR	NUWC/N : Newport, RI	10.424	0.000		0.000		0.000		-		0.000	0.000	10.424	-
Government Engineering Support	WR	NAWC/AD : Pax River, MD	25.062	0.000		0.000		0.000		-		0.000	0.000	25.062	-
Government Engineering Support	WR	NSWC/CR : Crane, IN	17.722	0.000		0.000		0.000		-		0.000	0.000	17.722	-
Government Engineering Support	WR	NSWC/PD : Philadelphia, PA	79.292	0.000		0.000		0.000		-		0.000	0.000	79.292	-
Government Engineering Support	Various	Government Activities : Various	57.637	0.000		0.000		0.000		-		0.000	0.000	57.637	-
Contractor Engineering Support	C/CPAF	Alion/CSC : Arlington, VA	49.802	0.000		0.000		0.000		-		0.000	0.000	49.802	-
Contractor Engineering Support	C/CPAF	Various : Various	28.087	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/CD : Bethesda, MD	19.253	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support	WR	PEO IWS : Various	9.391	0.000		0.000		0.000		-		0.000	0.000	9.391	-

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Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 4				PE 0603581N / Littoral Combat Ship				3096 / Littoral Combat Ship							
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	WR	General Dynamics Bath Iron Works : Bath, ME	0.933	0.000		0.000		0.000		-		0.000	0.000	0.933	-
Condition Based Maintenance	WR	NSWC/PHD : Port Hueneme, CA	5.180	0.000		0.000		0.000		-		0.000	0.000	5.180	-
Government Engineering Support	WR	NSWC/PHD : Port Hueneme, CA	3.650	0.000		0.000		0.000		-		0.000	0.000	3.650	-
Frigate Government Engineering Support	WR	NSWC/CD : Carderock, MD	1.179	0.000		0.000		0.000		-		0.000	0.000	1.179	-
Frigate Government Engineering Support	WR	NSWC/PD : Philadelphia, PA	0.468	0.000		0.000		0.000		-		0.000	0.000	0.468	-
Frigate Contractor Engineering Support	C/CPAF	Alion : Arlington, VA	0.973	0.000		0.000		0.000		-		0.000	0.000	0.973	-
Frigate Contractor Engineering Support	C/CPAF	Booz Allen Hamilton : McLean, VA	0.345	0.000		0.000		0.000		-		0.000	0.000	0.345	-
L&S Government Engineering Support	WR	NSWC/DD : Dahlgren, VA	5.830	14.309	Oct 2021	18.159	Oct 2022	7.281	Oct 2023	-		7.281	Continuing	Continuing	Continuing
L&S Government Engineering Support	WR	NSWC/CR : Crane, IN	0.451	1.250	Oct 2021	1.947	Oct 2022	0.823	Oct 2023	-		0.823	Continuing	Continuing	Continuing
L&S Government Engineering Support	WR	NSWC/PD : Philadelphia, PA	0.259	0.750	Oct 2021	8.436	Oct 2022	3.566	Oct 2023	-		3.566	Continuing	Continuing	Continuing
L&S Government Engineering Support	WR	Government Activities : Various	0.936	3.821	Oct 2021	8.300	Oct 2022	3.508	Oct 2023	-		3.508	Continuing	Continuing	Continuing
L&S Government Engineering Support	WR	NSWC/PHD : Port Hueneme, CA	0.000	4.363	Oct 2021	12.551	Oct 2022	4.910	Oct 2023	-		4.910	0.000	21.824	-
L&S Government Engineering Support	WR	NSWC/CD : Carderock, MD	0.260	0.268	Oct 2021	0.041	Oct 2022	0.017	Oct 2023	-		0.017	0.000	0.586	-
Subtotal			422.084	24.761		49.434		20.105		-		20.105	Continuing	Continuing	N/A

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPAF	Alion/CSC : Arlington, VA	31.844	0.000		0.000		0.000		-		0.000	0.000	31.844	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NSWC/PHD : Port Hueneme, CA	58.417	0.000		0.000		0.000		-		0.000	0.000	58.417	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NSWC/PD : Philadelphia, PA	67.169	0.000		0.000		0.000		-		0.000	0.000	67.169	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NSWC/PC : Panama City, FL	16.473	0.000		0.000		0.000		-		0.000	0.000	16.473	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	COMOPTEVFOR : Norfolk, VA	15.650	0.000		0.000		0.000		-		0.000	0.000	15.650	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NSWC/COR : Corona, CA	19.140	0.000		0.000		0.000		-		0.000	0.000	19.140	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	Government Activities : Various	72.219	0.000		0.000		0.000		-		0.000	0.000	72.219	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPAF	LM/GD/Austal : Various	81.580	0.000		0.000		0.000		-		0.000	0.000	81.580	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	PEO C4I : Charleston, SC	11.562	0.000		0.000		0.000		-		0.000	0.000	11.562	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	PEO IWS : Various	22.544	0.000		0.000		0.000		-		0.000	0.000	22.544	-
Prior Year Live Fire Test & Evaluation Not Funded FYDP (PYLFT&E)	WR	NAVAIR : Patuxent River, MD	4.487	0.000		0.000		0.000		-		0.000	0.000	4.487	-

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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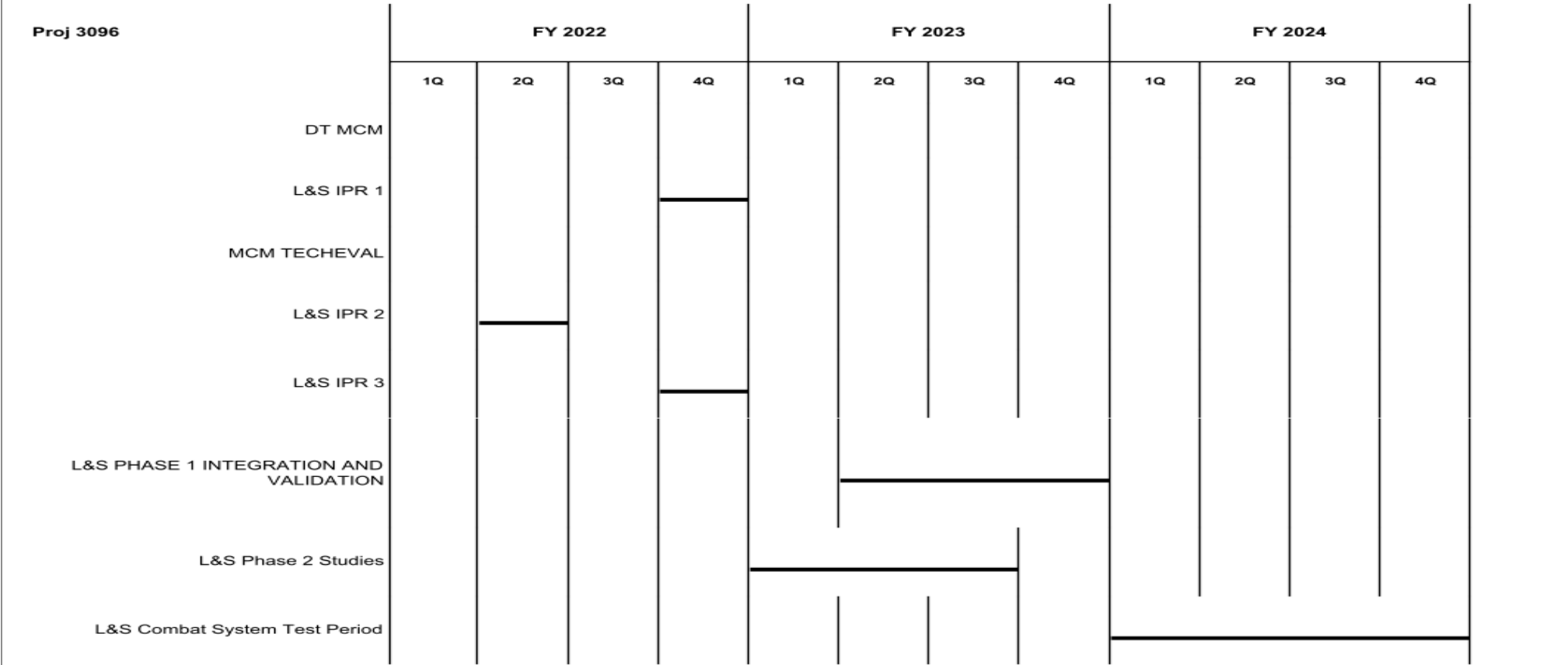
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Live Fire Test & Evaluation Not Funded FYDP (PYLFT&E)	WR	NAWC/WD : Pt. Mugu, CA	3.468	0.000		0.000		0.000		-		0.000	0.000	3.468	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NSWC/CD : Bethesda, MD	24.784	0.000		0.000		0.000		-		0.000	0.000	24.784	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	C/BA	National Science Foundation : Arlington, VA	2.671	0.000		0.000		0.000		-		0.000	0.000	2.671	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	C/BA	NAVFAC Atlantic : Virginia Beach, VA	0.759	0.000		0.000		0.000		-		0.000	0.000	0.759	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	C/BA	Naval Research Laboratory : Washington, DC	1.099	0.000		0.000		0.000		-		0.000	0.000	1.099	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NSWC/DD : Dahlgren, VA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			433.866	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
L&S Program Management Support	WR	Various : Various	2.068	2.109	Nov 2021	3.745	Oct 2022	1.583	Oct 2023	-		1.583	Continuing	Continuing	Continuing
Program Management Support- SEAPORT	C/CPAF	Alion/CSC : Arlington, VA	20.593	0.000		0.000		0.000		-		0.000	0.000	20.593	-
Program Management Support	Various	Various : Various	12.212	0.000		0.000		0.000		-		0.000	0.000	12.212	-
Subtotal			34.873	2.109		3.745		1.583		-		1.583	Continuing	Continuing	N/A

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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2024DON - 0603581N - 3096

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 3096 / <i>Littoral Combat Ship</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3096</i>				
L&S IPR 1: LCS Lethality & Survivability In Progress Review	4	2022	4	2022
L&S IPR 2: LCS Lethality & Survivability In Progress Review	2	2022	2	2022
L&S IPR 3: LCS Lethality & Survivability In Progress Review	4	2022	4	2022
L&S PHASE 1 INTEGRATION AND VALIDATION: Both Variants	2	2023	4	2023
L&S Phase 2 Studies: LCS Lethality & Survivability Combat System Integration Studies for Phase 2 - Both Variants	1	2023	3	2023
L&S Combat System Test Period: LCS Lethality & Survivability Combat System Test Period	1	2024	4	2025

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Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>				Project (Number/Name) 4506 / <i>LCS Training</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4506: <i>LCS Training</i>	62.893	5.372	1.398	0.927	-	0.927	0.942	0.927	0.908	0.926	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 374

A. Mission Description and Budget Item Justification

As a minimally-manned ship, the LCS uses a Train-to-Qualify (T2Q)/Train-to-Certify (T2C) training process in an off-ship/shore-based virtual ship trainer environment. These simulators and blended training solutions focus on tactical, equipment operations, and maintenance training. When completely developed and procured, the LCS shore-based training capability will satisfy individual, team, unit, and force training, with an objective of meeting Capability Development Document (CDD) T2Q/T2C Key Performance Parameter (KPP) requirements.

Funding will develop upgrades of the Surface Training Advanced Virtual Environment (STAVE) courseware and associated simulators to achieve the training objectives. Additionally, after fielding more of the systems and courseware, out-year funding will be utilized to upgrade training to maintain conformity with LCS configurations and approved operational technical manuals and procedures, as well as test and evaluate training devices to verify compliance with requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: LCS Total System Training Architecture	5.372	1.398	0.927	0.000	0.927
Articles:	-	-	-	-	-
FY 2023 Plans:					
FY23 RDTE funding supports government labor and contract oversight for delivery of multiple LCS Scenario Development Stations (SDS) to LTF Mayport, LTF San Diego and Surface Warfare Schools Command located in Newport, RL. The SDS provides the ability to generate new tactical scenarios and update existing scenarios for use by the LCS Integrated Tactical Trainers and Bridge Part Task Trainers. Currently the operational trainers must be used to develop and validate scenarios which prevents use of the trainer by Ship crews. Without the SDS, the crew certification training at both LTFs will be impacted due to limited training resources. In addition to the SDS procurement, FY23 RDTE funding also supports government labor and oversight of the new Engineering Plant Technician course for the Freedom Variant LCS. The new course is being developed under Surface Training Advanced Virtual Environment (STAVE)-LCS and utilizes virtual immersive training to meet train to qualify (T2Q) and train to certify (T2C) requirements for this Engineering watchstation.					
FY 2024 Base Plans:					
FY24 RDTE funding supports government labor and contract oversight for delivery of multiple LCS Scenario Development Stations (SDS) to LTF Mayport, LTF San Diego and Surface Warfare Schools Command located in Newport, RL. The SDS provides the ability to generate new tactical scenarios and update existing scenarios					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 4506 / <i>LCS Training</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>for use by the LCS Integrated Tactical Trainers and Bridge Part Task Trainers. Currently the operational trainers must be used to develop and validate scenarios which prevents use of the trainer by Ship crews. Without the SDS, the crew certification training at both LTFs will be impacted due to limited training resources. SDS delivery should be completed in Q2 of FY24. In addition to the SDS procurement, FY24 RDTE funding also supports government labor and oversight of the new Engineering Plant Technician course for the Freedom Variant LCS. The new course is being developed under Surface Training Advanced Virtual Environment (STAVE)-LCS and utilizes virtual immersive training to meet train to qualify (T2Q) and train to certify (T2C) requirements for this Engineering watchstation. The course is planned for Fleet delivery in FY25.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Budget request decreased by -.471 from FY23 to FY24. This small change brings the budget into a steady state baseline for the FYDP.</p>					
Accomplishments/Planned Programs Subtotals	5.372	1.398	0.927	0.000	0.927

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/5664: <i>Surface Training Equipment</i>	135.814	198.695	196.736	-	196.736	145.548	195.848	173.546	174.382	Continuing	Continuing

Remarks

LCS funding accounts for only a portion of the OPN 5664 line:
FY22 \$ 14.890, FY23 \$46.984, FY24 \$19,214

D. Acquisition Strategy

Per the combined LCS Navy Training System Plan (NTSP), the LCS crew training concept will meet Train to Qualify (T2Q) and Train to Certify (T2C) requirements incrementally, with expected completion in FY25. In the interim, individual qualifications for LCS crew members will be accomplished through a combination of vendor training, existing Navy training, new LCS courses and trainers that are presently online, and Under Instruction (U/I) time aboard LCS ships, prior to reporting for duty. Shore-based training requirements cannot be fully met with the interim LCS training strategy. Full realization will be achieved with the completed standup of the San Diego and Mayport, LCS Training Facilities (LTF), which include the Integrated Tactical Trainers, Bridge, Readiness Control Officer (RCO), Combat Systems and Mission Package Training System (MPTS) part-task trainers, the Common Mission Package Trainer (CMPT), Mission Bay Trainer and Virtual Reality Labs to support the Train to Qualify operations and maintenance pipeline courses.

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 4506 / <i>LCS Training</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Deck/Mission Bay Courseware	C/FFP	Cubic : Orlando, FL	2.253	0.225	Nov 2021	0.000		0.000		-		0.000	0.000	2.478	-
Combat Systems Courseware	C/FFP	Cubic : Orlando, FL	28.551	0.000		0.000		0.000		-		0.000	7.800	36.351	-
Eng. Training Courseware	C/FFP	Cubic : Orlando, FL	1.092	0.920	Nov 2021	0.000		0.000		-		0.000	4.906	6.918	-
Training Development - Support	WR	NAWC/TSD : Orlando, FL	12.293	0.407	Jul 2022	1.298	Oct 2022	0.927	Nov 2023	-		0.927	Continuing	Continuing	Continuing
VTUAV/MH60	C/FFP	TBD : TBD	0.364	0.000		0.000		0.000		-		0.000	6.270	6.634	-
Mission Bay Trainer	C/CPAF	Cubic : Orlando, FL	1.523	0.000		0.000		0.000		-		0.000	0.000	1.523	-
ITT/BPTT SDS	WR	NAWC/TSD : Orlando, FL	0.000	3.820	Jul 2022	0.000		0.000		-		0.000	0.000	3.820	-
Subtotal			46.076	5.372		1.298		0.927		-		0.927	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Human Systems Integration	WR	NSWC, DD : Dahlgren Virginia	1.029	0.000	Nov 2021	0.100	Mar 2023	0.000		-		0.000	0.000	1.129	-
Information Assurance	WR	NSWC, DN : Dam Neck, VA	4.414	0.000		0.000		0.000		-		0.000	0.000	4.414	-
Training ISEA	WR	NSWC/PHD : Port Huenum, CA	1.804	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	1.804	-
Warfare Center SME/ NAVFAC	WR	VARIOUS : VARIOUS	2.955	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	2.955	-
Subtotal			10.202	0.000		0.100		0.000		-		0.000	0.000	10.302	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support	C/CPAF	Various : Various	6.615	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	6.615	-

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 4506 / <i>LCS Training</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 4506	
Surface Training Advanced Virtual Environment (STAVE): DECK STAVE - Development	
Surface Training Advanced Virtual Environment (STAVE): Engineering Training Courseware Development	

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

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / <i>Littoral Combat Ship</i>	Project (Number/Name) 4506 / <i>LCS Training</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 4506</i>				
Surface Training Advanced Virtual Environment (STAVE): DECK STAVE - Development	1	2022	2	2025
Surface Training Advanced Virtual Environment (STAVE): Engineering Training Courseware Development	1	2022	4	2026