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OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



Littoral Combat Ship Mission Modules

FY 2024 President's Budget

**Defense Acquisition Visibility Environment
(DAVE)**

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Common Acronyms and Abbreviations

\$B - Billions of Dollars
\$K - Thousands of Dollars
\$M - Millions of Dollars
ACAT - Acquisition Category
Acq O&M - Acquisition-Related Operations and Maintenance
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FMS - Foreign Military Sales
FOC - Full Operational Capability
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
Inc - Increment
IOC - Initial Operational Capability
JROC - Joint Requirements Oversight Council
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
O&S - Operating and Support
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
PAUC - Program Acquisition Unit Cost
PB - President's Budget

PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
U.S. - United States
UCR - Unit Cost Reporting
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Littoral Combat Ship Mission Modules

DoD Component

Navy

Responsible Office

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Mission and Description

The Littoral Combat Ship (LCS) is a fast, agile, and networked surface combatant optimized for operations close to shore, otherwise known as the littorals. The LCS Mission Modules (MM) Program provides a modular, focused mission capability to the Combatant Commanders to provide assured access against littoral threats. The primary missions for the LCS include countering littoral mine and surface threats to assure maritime access for Joint Forces.

A Mission Package (MP) consists of Mission Modules with crew and support aircraft. Mission Modules combine Mission Systems (vehicles, sensors, weapons) and support equipment that install into the ship via standard interfaces.

Mission Modules are added to the Mission Package baselines incrementally as they reach a level of maturity necessary for fielding. This approach provides for continuous improvement of warfighting capability through an evolutionary acquisition process.

Executive Summary

LCS MM

Program Highlights Since Last Report

Significant Accomplishments: The LCS MM Program expects for the Navy to declare IOC of the Mine Countermeasures (MCM) Mission Package (MP) in FY 2023. The Program of Record will field capabilities as approved in the budget and in phase with ship deliveries. With the PB for FY 2023 submission, the Navy has revised the LCS MM Program quantities to align with the proposed LCS decommissionings and to reflect the planned divestment of the Anti-Submarine Warfare (ASW) MP from LCS. The revised quantities include a total of 35 MPs as follows: 24 MCM MPs – 15 for LCS and 9 for Vessels Of Opportunity (VOOs), 10 Surface Warfare (SUW) MPs, and 1 ASW MP – previously procured with FY 2020 and FY 2021 funds. The 24 deployable MCM MPs will support 15 Independence variant LCS and the Chief of Naval Operations direction to use other Navy platforms (VOOs). The 10 deployable SUW MPs procured from FY 2010 to FY 2018 will support 8 LCS. The OPNAV resource sponsors are updating Program requirements per MCM Mission Package CDD May 2022, "LCS MM Procurement Quantity Changes" letter, and draft LCS CDD removing ASW MP, updating MCM MP baseline systems, and modifying LCS MM system procurement quantities. Based on those updated requirements, Gate 6 Sufficiency Review held in December has concurred with the program's plan to update its APB based on updated requirements. SUW MP: The Navy achieved IOC for the SUW MP with the Gun Mission Module and Maritime Security Module (MSM) in November 2014, Surface-to-Surface Missile Module (SSMM) in March 2019. SUW MP is operating in the Fleet today (Q2 FY 2022 - Q2 FY 2023 deployments included/will include LCS 5, LCS 6, LCS 11, LCS 13, LCS 15, LCS 16, LCS 17, LCS 18, LCS 24, and LCS 26) embarked with the full SUW MP, MSM only or a hybrid MSM/MCM configuration. Five SSMM production units awarded with FY 2019-FY 2021 Other Procurement, Navy. Delivery of first SSMM occurred in February 2022 and was installed on LCS 17 in January 2023 in support of an upcoming deployment. SUW Cyber Security Testing completed aboard LCS 9 in Q4 FY 2022. SUW MP has been participating in various Fleet experimentation including the employment of SSMM against land-based targets during Exercise Jaded Thunder from LCS 8 in May 2022 and demonstration of an experimental SUW MP payload during Rim of the Pacific 22. MCM MP: All Aviation Modules (Near Surface Detection, Airborne Mine Neutralization, and Coastal Mine Reconnaissance) are certified for deployment and have been deployed on both FREEDOM and INDEPENDENCE variants to both 4th and 7th Fleet. MCM MP baseline program completed Technical Evaluation (TECHEVAL) in July 2022 and MCM MP Initial Operational Test & Evaluation (IOT&E) in August 2022. Operational Test & Evaluation Force has released the MCM MP final test report in January 2023. MCM MP IOC letter is being routed for approval and with an expected date of Q2 FY 2023. Navy declared IOC of Unmanned Influence Sweep System in July 2022 and is currently in production. Completed MCM USV + Minehunt Payload (AQS-20) TECHEVAL in Q3 FY 2022. MCM USV + Minehunt Payload (AQS-20) shore based IOT&E completed Q4 FY 2022. IOC is expected in early 2023 in conjunction with MCM MP IOC. The LCS MM Program is planning on delivering four complete MCM MP to the Fleet by Q2 FY 2024. The Program completed integration testing and took part in MCM MP TECHEVAL in FY 2022. The program plans to take acceptance of the five Knifefish LRIP systems in FY 2024, following the completion acceptance testing in FY 2023 and transition to the Fleet with a limited capability in Q2 FY 2024 in support of Fleet experimentation and demonstrations. The LCS MM Program demonstrated the flexibility of the MCM MP with completion of the first at-sea exercise on a VOO aboard USS Hershel "Woody" Williams (T-ESB 4) in September 2019; a follow-on Phase III at-sea event was successfully conducted in Q3 FY 2020. ASW MP: With the submission of PB 2023, the Navy has divested the ASW MP capability for LCS. The ASW MP program is executing an orderly shutdown which expeditiously completes Dual-Mode Array Transmitter Variable Depth Sonar efforts.

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Dec - 2022	With completion of 2022 Gate 6 review, LCS MM was directed to update its current APB to reflect Procurement Quantity Changes outlined in 'LCS Procurement Quantity Changes' letter from N9 to PEO USC. (Reductions: AMNS 48 to 20, ALMDS 24 to 12, COBRA Blk I 24 to 5, SSMM 10 to 5, ASW EDM 10 to 1, ASW EMM EDM 1, ASW AVMM 10 to 0).
Apr - 2022	With the PB 2023 submission, the Navy reduced MP quantities to 35 MPs (24 MCM MPs, 10 SUW MPs, 1 ASW MP), and 5 non-deployable EDMs (1 MCM MP, 2 SUW MPs, 2 ASW MPs), 40 total MPs based on the planned LCS ship decommissionings and ASW MP divestment from LCS.
Jan - 2021	JROC approved revised Navy requirements in a new MCM MP Capabilities Development Document.
Feb - 2020	MDA signed ADM of February 14, 2020 increasing LRIP authority to 44 Mission Packages.
Sep - 2018	MDA approved the LCS MM Program re-baseline via APB Change 1.
Aug - 2018	MDA signed ADM of August 20, 2018 increasing quantity of developmental ASW MPs from one to two resulting in a total of 5 non-deployable EDM MPs. In addition, this ADM authorized removal of the LRIP decision (Milestone C) for the LCS MM Program on the basis that 12 of the 13 mission systems that comprise the LCS MM Program will achieve independent LRIP decisions as separate ACAT programs.
Feb - 2018	With the PB 2019 submission, the Navy reduced MP quantities (from 64 to 48 total MPs consisting of 44 deployable and 4 non-deployable Engineering Development Model (EDM) MPs) based upon the total planned 32 LCS class ships, pending FY 2018 and FY 2019 budget approvals, and CNO direction to use other Navy platforms (Vessels of Opportunity) to host the Mine Countermeasures (MCM) MP to comply with Section 1046 of the FY 2018 NDAA which prohibits the retirement of legacy MCM forces until the Navy has identified a replacement capability and procured a quantity of such systems to meet combatant MCM operational requirements that are currently being met by legacy forces. The PB 2020 submission supports procurement of 24 MCM MPs, 10 Surface Warfare (SUW) MPs, and 10 Anti-Submarine (ASW) MPs.
Feb - 2016	Chief of Naval Operations (CNO) directed the establishment of the LCS Review Team to review the LCS operations and sustainment strategy and number of mission packages required to support the LCS Seaframes.
Dec - 2015	Secretary of Defense Memo of December 14, 2015 directed the Navy to build no more than 40 LCS and Frigate and to down select to one variant no later than FY 2019. Navy submitted a 40 ship SAR (29 LCS / 11 Frigate), consistent with PB 2017 and SECDEF guidance. Navy initiated review of the LCS Mission Package quantities based on updated LCS quantities.
Jan - 2014	The program achieved Milestone B approving entry into the EMD phase and procurements of five developmental MPs and up to 27 LRIP MPs.
Nov - 2013	USD(AT&L) approved the APB based on a Resources & Requirements Review Board conducted August 6, 2013. Initial APB included a quantity 64 deployable mission packages (MPs).
Oct - 2012	USD(AT&L) signed ADM of October 3, 2012 re-designating the LCS MM program as an ACAT IC program.
Apr - 2011	ADM signed splitting the LCS Seaframe and LCS MMs into two separate MDAPs.
Mar - 2004	Milestone A / Program Initiation for the LCS Seaframes and Mission Modules.

Schedule

LCS MM

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone A (Combined LCS program)	May 2004	May 2004	May 2004	May 2004	
Mission MP, Production, and Assembly contract award	Mar 2006	Mar 2006	Mar 2006	Mar 2006	
First MCM MP delivery	Sep 2007	Sep 2007	Sep 2007	Sep 2007	
First SUW MP delivery	Jul 2008	Jul 2008	Jul 2008	Jul 2008	
Milestone A Prime	Aug 2009	Aug 2009	Aug 2009	Aug 2009	
Milestone B	Aug 2013	Jan 2014	Jan 2014	Jan 2014	
SUW MP IOC		Nov 2014	Nov 2014	Nov 2014	
ASW MP IOC		Sep 2020	Sep 2021	-	Yes
MCM MP IOC		Jun 2022	Jun 2023	Mar 2023	

Notes

(Ch-1) Anti-Submarine Warfare (ASW) Mission Package (MP) IOC changed from June 2020 to N/A as the ASW MP will be divested in FY 2023 in alignment with the decommissioning of eight LCS Seaframes. With this divestment, the LCS MM Program will no longer have an ASW MP requirement.

(Ch-2) Mine Countermeasures (MCM) MP IOC changed from June 2022 to March 2023 due to revised MCM MP test schedules driven by Unmanned Influence Sweep System (UISS) Initial Operational Test and Evaluation (IOT&E) delays and completion of system-level MCM Unmanned Surface Vehicle (USV) Minehunting contractor verification testing. Threshold dates for ASW MP and MCM MP IOC are set to 12 months vice 6 months to be consistent with the Milestone B APB. The test schedule is heavily reliant on ship availability and the duration of testing for the ASW and MCM MPs is approximately a year. Any small deviation in schedule would likely result in a schedule breach if objective to threshold remained at 6 months. Items are listed as N/A above due to revision of Schedule Events when the APB was updated with LCS MM APB Change 1. Milestone C was removed because nearly all of the LCS mission systems that comprise the LCS MM Program's MPs achieve independent Milestone C decisions in separate acquisition programs. Additionally, the IOC dates for each MP were consolidated to a single IOC date for each warfare area instead of multiple increments.

Deviation Explanation

No deviations for this program/subprogram

Performance

LCS MM

Classified performance information is provided in the classified annex to this submission

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold		Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP)SUW MP - Materiel Availability (1)					
	.712	0.64	TBD	0.85	
(KPP)MCM MP - Materiel Availability (2)					
	.712	0.64	TBD	0.73	
(KPP)ASW MP - Materiel Availability (3)					
	.712	0.64			
(KPP)SUW MP - Train-to-Certify: A trained crew is required for MP Billets / Watch Stations (1)					
	Trained-to-Certify at all Team (Watch Section) levels	Trained-to-Certify at all Team (Watch Section) levels	TBD	Trained-to-Certify at all Team (Watch Section) levels	
(KPP)MCM MP - Train-to-Certify: A trained crew is required for MP Billets / Watch Stations (2)					
	Trained-to-Certify at all Team (Watch Section) levels	Trained-to-Certify at all Team (Watch Section) levels			
(KPP)ASW MP - Train-to-Certify: A trained crew is required for MP Billets / Watch Stations (3)					
	Trained-to-Certify at all Team (Watch Section) levels	Trained-to-Certify at all Team (Watch Section) levels			

Requirement Reference

LCS Flight 0 Capability Development Document (CDD) dated May 25, 2004 and LCS Flight 0+ CDD dated June 17, 2008

Deviation Explanation

No deviations for this program/subprogram

Notes

Reflects APB Change 1 requirements. The IOC declaration of the MCM Mission Package (MP) will be achieved in Q2 of FY 2023. The MCM MP IOT&E concluded in August 2022, and MCM MP received an Operationally effective and suitable report from Operational Test and Evaluation Force (OPTEVFOR) in January 2023. MCM MP IOC APB Threshold is June 2023. Separate from the MCM MP, a letter recommending the declaration of IOC for the AN/AQS-20 Mine Detection Set will be issued addressing findings from the AN/AQS-20 Operational Test report, and will contain a similar POA&M. Based on initial integration testing, the MCM MP is projected to meet the majority of KPPs and Key System Attributes (KSAs) in the approved

MCM MP CDD (Capability Development Document) by IOC. The Survivability KPP will be met at Full Operational Capability. The Train-to-Certify KSA will be met by initial MCM MP deployments. The MCM MP's achievement of the survivability threshold is pending the results of a cyber test event in FY 2024. The MCM MP has authorizations to operate (ATOs) for all systems and significant cyber controls in place. In addition, the survivability threshold is depending on the status of the MVCS anti-jam capability, which is a Full Operational Capability (FOC) requirement. The anti-jam capabilities are expected to include additional capabilities to increase the MP's resilience against electronic attacks and jamming. Demonstrated Performance is blank as performance for the ASW MP has not been demonstrated since testing has not been completed. Current Estimates are N/A as the ASW MP is planned to be divested from LCS eliminating the ASW MP requirement. Interoperability Information Exchange Requirement KPP replaced by Net Ready KPP. Classified Performance is available in Classified Annex.

Acquisition Budget Estimate

LCS MM

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2010	2,233.7	2,369.3	2,606.2	2,368.5	2,529.6	
Procurement	2010	4,116.7	3,279.6	3,634.3	2,524.4	3,172.3	
MILCON	2010	29.1	36.1	39.7	36.1	44.4	
Acq. O&M	2010	0	0	0	0	0	
Total		6,379.5	5,685.0		4,929.0	5,746.3	
PAUC	2010	99.680	116.020	128.168	123.225	143.658	
APUC	2010	69.775	74.536	84.519	72.126	90.637	

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

RDT&E, Navy; Other Procurement, Navy (OP,N); and Weapons Procurement, Navy (WP,N) costs associated with replacement, attrition, and technology refresh (RAT) costs are accounted for in O&S per the LCS MM APB.

- RDT&E, Navy reflects PB 2023 budget controls, however, RDT&E,N for this SAR submission deviates from the PB 2023 budget due to RAT costs for the development associated with obsolescence/technology refreshes for the Mission Package Computing System (MPCE) and Multiple Vehicle Communications System (MVCS), which are being captured under O&S. RDT&E,N further deviates from budget in this SAR to fully account for divestment of the ASW MP.
- OP,N reflects PB 2023 controls, however, OP,N for this SAR submission deviates from the PB 2023 budget due to RAT costs for Airborne Mine Neutralization System, Airborne Laser Mine Detection System, Gun Module Modernization, and 11m Rigid Hull Inflatable Boats, Surface Warfare Mission Package Obsolescence, MPCE, Mission Package Portable Control Station (MPPCS), MVCS, and Common Mission Package Trainer obsolescence/technology refreshes which are being captured under O&S. OP,N further deviates from budget in this SAR to fully account divestment of the ASW MP.
- WP,N includes initial procurement costs for the Longbow Hellfire missiles for the Surface to Surface Missile Module (SSMM). WP,N costs for replenishment missiles accounted for in O&S.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	5	5
Procurement	44	35
O&M-Acquired		

Quantity Notes

The LCS MM Program uses Mission Packages (MP) as its quantity unit of measure. A MP consists of mission modules, plus a mission crew detachment and supporting aircraft. The program provides funding to other programs for the purpose of procuring mission systems (MS). These MS (offboard vehicles, sensors, and weapons) are then combined with common mission modules equipment. For the purposes of Congressional visibility into program execution, the annual PB submission breaks out these MS procurements in detail. With the PB for FY 2023 submission, the Navy has revised the LCS MM Program quantities to align with the proposed LCS decommissioning's and to reflect the planned divestment of the ASW MP from LCS. The revised quantities include a total of 35 MPs as follows:

- 24 MCM MPs for LCS and Vessels Of Opportunity (VOOs)
- 10 Surface Warfare (SUW) MPs
- 1 Anti-Submarine Warfare (ASW) MP – previously procured with FY 2020 and FY 2021 funds.

The 24 deployable MCM MPs will support the 15 Independence variant LCS (LCS 10-38) and the Chief of Naval Operations direction to use other Navy platforms (VOOs) to comply with Section 1046 of the FY 2018 National Defense Authorization Act (NDAA) (P.L. 115-91), as modified by the FY 2021 NDAA (P.L. 116-283), which prohibits the retirement of legacy MCM forces until the Navy has identified a replacement capability, and OSD Director, Operational Test & Evaluation (DOT&E) has certified that capability, and procured a quantity of such systems to meet combatant MCM operational requirements that are currently being met by legacy forces. The 10 deployable SUW MPs procured from FY 2010 to FY 2018 will support 6 Freedom variant LCS – LCS 21, 23, 25, 27, 29, and 31.

All 10 SUW MPs will remain in-service to support LCS deployments until MCM MPs are delivered in quantities sufficient to support LCS 10-38. The 35 MPs along with five non-deployable EDM MPs equate to 40 total MPs. The 35 MPs are comprised of deployable, production representative systems (one deployable SUW MP was procured with both RDT&E, Navy and Other Procurement, Navy (OPN) and is included in the inventory objective of 10 SUW MPs), as well as the one production ASW MP procured with FY 2020-FY 2021 OPN funds. The five non-deployable EDM assets are comprised of one MCM MP, two SUW MPs, and two ASW MP, which are not included in the deployable MP quantities.

Unit Cost**LCS MM**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2010	Current UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	5,685.0	4,929.0	
Quantity	49	40	
Unit Cost	116.020	123.225	6.21%
Average Procurement Unit Cost			
Cost	3,279.6	2,524.4	
Quantity	44	35	
Unit Cost	74.536	72.126	-3.23%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2010	Original UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	6,379.5	4,929.0	
Quantity	64	40	
Unit Cost	99.680	123.225	23.62%
Average Procurement Unit Cost			
Cost	4,116.7	2,524.4	
Quantity	59	35	
Unit Cost	69.775	72.126	3.37%

Cost Growth Details**Current Baseline PAUC Breach Explanation****Current Baseline APUC Breach Explanation****Original Baseline PAUC Breach Explanation****Original Baseline APUC Breach Explanation****Impacts of Schedule Changes on Unit Cost**

Not provided in SAR.

Impacts of Performance Changes on Unit Cost

Not provided in SAR.

Actions Taken or Proposed to Control Future Cost Growth

Not provided in SAR.

Risk and Sensitivity Analysis**LCS MM**

Risk and Sensitivity Analysis
Current Procurement Cost(December - 2022)
The Program has incurred production delays due to extended material lead times, sub-tier suppliers experiencing raw material shortages, and related labor complications as a result of increasing risk for procurement cost overruns for mission systems, support equipment, and support container hardware.
Original Baseline Estimate (November - 2013)
Navy accepted full funding responsibility in accordance with the Service Cost Position policy in support of the FY 2014 – FY 2018 FYDP.
Current Baseline Estimate (September - 2018)
In support of the FY 2018 program re-baseline, a Program Life Cycle Cost Estimate (PLCCE) was developed as the cost baseline for the revised APB (APB Change 1 approved September 2018). The program performed a risk assessment on the remaining drivers of acquisition cost impacting Program Acquisition Unit Cost (PAUC) and Average Procurement Unit Cost (APUC). The risk assessment resulted in a point estimate above the 50th percentile for the areas assessed. The program established APB Change 1 based on the point estimate results as any risk adjustment would underfund known costs for mature systems or underfund systems with more technical risk. The Navy is working to address any funding shortfalls identified between the current estimate and the PB 2021 budget.

Schedule Risk		
Current	2021-12-31	<p>Completing testing for the ASW MP has high schedule risk. ASW MP maturation continued with design improvements and testing. Program schedule has been impacted by system reliability/hydrodynamic stability, LCS 3 (test platform) materiel availability, and submarine (target) availability during FY 2021. Program focus has been on maturing the underwater vehicle's hydrodynamic stability through the rapid implementation of active roll controls. Hydro maturation efforts are expected to last through July 2022. In part due to assessed high risk of the hydrodynamic corrective actions as well as transducer reliability and performance, PB 2023 divests the ASW mission for LCS. With this divestment, the Program will conduct an orderly shutdown of the ASW MP. Discussions are ongoing with the Original Equipment Manufacturer on the contractual way ahead.</p>

Current	2021-12-31	<p>The Program has incurred production delays due to extended material lead times, sub-tier suppliers experiencing raw material shortages, and related labor complications as a result of the COVID-19 pandemic increasing schedule risk for mission system and support equipment/container hardware deliveries. For example, the Surface to Surface Missile Module (SSMM) Prime Contractor has indicated a potential schedule delay for the four SSMM in production because of COVID-19 impacts due to availability of Honeycomb panels as a result of the original supplier of the core material going out of business. The Program has accounted for this delay and working with Fleet to establish a plan for deployment of the modules. The Fleet plans to continue to embark and deploy Surface Warfare (SUW) MPs with SSMMs as they deliver from the production line. The Program has delivered the first production SSMM in February 2022 which will be ready for deployment in Q3 FY 2022, as well as all 10 deployable SUW MP with Gun Mission Modules (GMM), Maritime Security (MSM), and Aviation assets to the Fleet.</p>
Current	2021-12-31	<p>The Program is tracking schedule risk to complete all entry criteria to support achieving MCM MP IOC in 4Q FY 2022. The Navy is currently conducting Minehunting testing at the system-level with the MCM USV, AQS-20 sonar, and Minehunting PDS. Based on testing progress, additional Minehunting Data Collection may be necessary to complete all test objectives planned at the system-level prior to MCM MP IOT&E. MCM MP End-to-End IOT&E is scheduled to complete in late 4Q FY 2022 with cyber security testing in 1Q FY 2023. Based on nominal test reporting timelines by OPTEVFOR and DOT&E, the outputs of which support IOC, the Program may not receive approved test reports until late 1Q FY 2023 resulting in a delay to MCM MP IOC. MCM MP IOC would still be in advance of the APB threshold of June 2023.</p>

Current	2022-12-13	<p>Completion of MCM MP IOT&E occurred in Aug 2022. PMS 420 received final IOT&E report in Jan 2023. OPNAV will declare MCM MP IOC following Fleet endorsement of recommendation to declare MCM MP expected in Q2 of FY 2023. In addition, the Minehunt MM will also declare IOC in Q2 of FY 2023. MCM MP IOC would still be in advance of the APB threshold of June 2023. The RMH Module, the final Mission Module to go through Individual Program of Record testing, including the MCM USV with the Minehunt PDS towing the AN/AQS-20C sonar, completed system operational testing in Q1 FY 2023. Based on initial information gathered from both MCM MP IOT&E and Minehunting operation testing, the Program has initiated and completed root cause assessments on findings impacting both the effectiveness and suitability of the minehunting system. PMS420 has provides a POA&M on addressing each of these findings with its recommendation for declaration of IOC of the AQS-20C sonar.</p>
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Current	2022-12-13	<p>The Program has incurred production delays due to extended material lead times, sub-tier suppliers experiencing raw material shortages, and related labor complications as a result of the COVID-19 pandemic increasing schedule risk for mission system and support equipment/container hardware deliveries. For example, the Surface to Surface Missile Module (SSMM) Prime Contractor has indicated a potential schedule delay for the four SSMM in production because of COVID-19 impacts due to availability of Honeycomb panels as a result of the original supplier of the core material going out of business. The Program has accounted for this delay and is working with Fleet to establish a plan for deployment of the modules. The Fleet plans to continue to embark and deploy Surface Warfare (SUW) MPs with SSMMs as they deliver from the production line. The Program delivered the first production SSMM in February 2022 which was embarked on LCS 17 in support to a deployment in Q3 FY 2023, 10 deployable SUW MP with Gun Mission Modules (GMM), Maritime Security (MSM), and Aviation assets are operational and available to the Fleet.</p>
MS B	2014-01-01	<p>Program is delivering mission systems as able to under sequestration-level budget constraint. Congressional Marks adversely impact ability to procure systems, delaying delivery of capability to the fleet to meet operational needs.</p>
Other	2018-09-01	<p>The Program did not report any schedule risks in APB Change 1.</p>
Technical Risks		
Current	December 24, 2021	<p>Risk that Gun Mission Module (GMM) operational availability may drop below KPP threshold if sufficient spare Magic 1s are not available before Gun Module Remote Control System (GMRCS) redesign/production is complete. PB 2023 funds ramp-up of production units; risk will be mitigated once enough GMRCS units are produced to alleviate current spares impact.</p>

Current	December 24, 2021	There is a high risk that Dual ARray Transmitter (DART) will not meet performance requirements due to design, manufacturing, and hydrodynamic performance issues. Risks can be mitigated with manufacturing process improvements, design changes, and testing planned through the end of FY 2022. With the PB 2023 submission, the Navy has proposed divestment of the ASW MP from LCS.
MS B	December 27, 2013	Risk that Mine Countermeasures (MCM) Mission Package (MP) Deep Volume Focused Minehunting (DVFMH) Sustained Area Coverage Rate (ACRS) will be below requirements if the individual Program of Record (PoR) mission systems do not achieve their required performance, or if the System of System (SOS) assumptions are incorrect.

Low Rate Initial Production

LCS MM

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	01/07/2014	02/14/2020
Approved Quantity	27	44
Reference	Milestone B ADM	ADM
Start Year	2006	2006
End Year	2018	2032

Rationale if quantity exceeds 10% of the total number of articles to be procured:

The Current Total LRIP Quantity is more than 10% of the total production quantity due to leveraging several individual Programs of Record (PoRs) as separate ACAT programs.

Notes

The Navy determined there is no meaningful FRP decision needed for the LCS MM Program since systems are in production as part of individual PoRs. As such, the Navy increased the authorized LRIP quantity in February 2020 to 44 MPs (24 Mine Countermeasures (MCM) Mission Package (MP), 10 Anti-Submarine Warfare (ASW) MP, and 10 Surface Warfare (SUW) MP) based on the certified quantity in the PB 2019 submission. Quantities in the above table represent the authorized LRIP quantity of 44 MPs, while the current planned procurement quantity remains 35 MPs per the PB2023 divestment of ASW.

Contracts & Efforts

Contract Data	
Contract Number	N00024-17-C-6311
Effort Number	
Modification Number	P00098
Award Date	03/16/2017
Definitization Date	03/16/2017
Order Number	
CAGE Code/CAGE Legal Name	26512/
Contract Title	Design, Engineering, Production & Sustainment
Contract Address	Bethpage, NY
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)

Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

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Contract Notes:

Contract Notes: Target Price reflects funded value on contract. Initial Target Price includes funded value for CLINs awarded on contract at time of award. Current Target Price includes funded value for all CLINs exercised on contract due date. Ceiling Price reflects total value of the contract if all available options are exercised. Cost Variance: Cost Variances are not reported for this contract, because all active non-level of effort CLINs are firm fixed priced and no EVM reporting is required because the threshold requirements for EVM reporting are not met. Schedule Variance: Schedule Variances are not reported for this contract, because all active non-level of effort CLINs are firm fixed priced and no EVM reporting is required because the threshold requirements for EVM reporting are not met.

Factors Contributing to Cost Variance and Projected Effects on Program Costs**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Contract Data	
Contract Number	N00024-19-C-6311
Effort Number	
Modification Number	P00017
Award Date	09/27/2019
Definitization Date	
Order Number	
CAGE Code/CAGE Legal Name	4GPS8/
Contract Title	Mission Package Computing, Software, and Trainers
Contract Address	Hauppauge, NY
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Target Price reflects funded value on contract. Initial Target Price includes funded value for CLINs awarded on contract at time of award. Current Target Price includes funded value for all CLINs exercised on contract due date. Ceiling Price reflects total value of the contract if all available options are exercised.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	N66604-15-C-086C
Effort Number	
Modification Number	P00074
Award Date	07/22/2015
Definitization Date	
Order Number	
CAGE Code/CAGE Legal Name	94404/Raytheon Company
Contract Title	Anti-Submarine Warfare Rapid Technology Insertion (RTI)
Contract Address	Portsmouth, RI
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
\$26,717,000	\$101,733,174	
Initial Ceiling Price	Current Ceiling Price	
\$101,914,173	\$173,005,923	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Notes: Target Price reflects funded value on contract. Initial Target Price includes funded value for CLINs awarded on contract at time of award. Current Target Price includes funded value for all CLINs exercised on contract due date. Ceiling Price reflects total value of the contract if all available options are exercised. Current Target and Ceiling Prices reflect inclusion of additional labor hours and other direct costs for test and integration, engineering change proposals and period of performance extensions, as well as inclusion of additional hardware production stepladders for Variable Depth Sonar procurements. Cost Variance: Cost Variances are not reported for this contract, because all active non-level of effort CLINs are firm fixed priced and no EVM reporting is required because the threshold requirements for EVM reporting are not met. Schedule Variance: Schedule Variances are not reported for this contract, because all active non-level of effort CLINs are firm fixed priced and no EVM reporting is required because the threshold requirements for EVM reporting are not met.

Factors Contributing to Cost Variance and Projected Effects on Program Costs**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

External Government Activities

Activity Title		Government Entity	Supported Phase
CAGE		Work Start Date	
City		State/Province:	
Notes			

Deliveries and Expenditures

LCS MM

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	5	100.00%
Production	11	11	35	31.43%
Total Program Quantity Delivered	16	16	40	40.00%

Expended and Appropriated (TY \$M)

Years Appropriated to date: 20

Total Years Appropriated Funding (Current Baseline): 32

Percent Years Appropriated: 62.50%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 9340.00%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 6720.00%

Total Acquisition Cost: 5,746.3

Deliveries & Expenditures Notes:

10 Surface Warfare (SUW) Mission Packages (MPs) and 1 Mine Countermeasures (MCM) MP included in production deliveries. With completion of 2022 Gate 6 review, LCS MM was directed to update its current APB to reflect Procurement Quantity Changes outlined in "LCS Procurement Quantity Changes" letter from N9 to PEO USC. (Reductions: AMNS 48 to 20, ALMDS 24 to 12, COBRA Blk I 24 to 5, SSMM 10 to 5, ASW EDM 10 to 1, ASW EMM EDM 1, ASW AVMM 10 to 0). Due to these reductions from the 2021 report to the 2022 report, the total acquisition cost has significantly decreased.

Operating and Support Costs

LCS MM

O&S Cost Breakdown:

Category (BY\$ Million)	LCS Anti-Submarine Warfare Mission Package
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	
Total	.0

Category (BY\$ Million)	LCS Mine Countermeasures Mission Package
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	
Total	.0

Category (BY\$ Million)	LCS MM
Unit-Level Manpower	1,732.0
Unit Operations	144.0
Maintenance	4,521.0
Sustaining Support	603.0
Continued System Improvements	3,170.0
Other	917.0
Total	11,087.0

Category (BY\$ Million)	LCS Surface Warfare Mission Package
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	
Total	.0

Cost Estimate Source: POE dated September 28, 2018

O&S Cost Notes: Approved by: Director, Cost

Assessment & Program Evaluation, September 28, 2018

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
Total O&S	16,819.9	18,501.9	12,534.0	18,074.0	

O&S Cost Deviation Explanation

Cost Notes:

a. Disposal/Demilitarization Cost Estimate and Source of Estimate:

- Current Baseline of \$152.4M (APB Change 1 Program Life Cycle Cost Estimate)
- Current Estimate of \$118.0M (Program Office Estimate)

b. Sustainment Strategy:

The Navy has decided to focus the San Diego homeported Independence Variant Hulls to an MCM MP focused configuration. While Mayport homeported Freedom Variant Hulls will be SUW MP configured. Until enough MCM MPs are delivered to outfit all Independence Variant Hulls, some West Coast ships will be outfitted with the SUW MP or a partial Maritime Security Module (MSM) configuration. Once embarked, the modular MPs provide the main warfighting capability to mitigate gaps in littoral MCM and SUW missions. The LCS Seaframes retain the flexibility to adjust this division structure as needed to address changing Fleet operational requirements. Division structure has been modified over the past two years to support fleet tasking. The concept of employment for LCS, which includes routine deployments overseas and prepositioned support facilities in potential theaters of operation [Forward Operating Sites, contributes to strategic deterrence and maintaining material availability.

Based on crew size the LCS has limited onboard resources to maintain and at times repair the mission systems that make up the MPs. Because of this, maintenance and repair work is assigned to an off-ship, shore-based workforce which is also utilized to execute the embarkations and debarkations of the MPs from the ships. The LCS MMs are maintained, stored, and centrally managed through the Mission Package Support Facility (MPSF). The MPSF executes and manages maintenance, provides technical support, manages spares, and ensures components (mission systems, mission modules, support containers, support equipment, or other equipment) are delivered to the Fleet. The MPSF plans, arranges, schedules, coordinates, and manages the execution of all maintenance tasks. The MPSF receives requests from the deployed or embarked MPs and translates the requests into required actions – this results in a seamless process and a single MP support interface to Fleet units. Individual mission systems maintenance plans describe specific mission system requirements and tasks necessary to sustain, maintain, or restore operational capability. Maintenance is performed by the crew, by the MPSF staff, by organic Navy resources, or by a contractor, as appropriate. The MPSF workforce is comprised of government and contractor personnel and has the ability to handle surge, low volume, and specialized tasks via other Government or Contractor resources.

Subordinate to the MPSF, the LCS MM Program established Mission Module Readiness Centers (MMRCs) at Continental United States (CONUS) sites and forward Outside Continental United States (OCONUS) locations to directly support deployed operations. The MMRCs are staffed and outfitted to execute appropriate maintenance, administrative, and storage capabilities at the homeports and FOS Locations. The MMRCs provide support for specific location operations (e.g., embarkation/debarkation evolutions corrective maintenance, and preventative maintenance availabilities (PMAVs)).

The LCS MM Program has a dedicated Product Support Manager (PSM) who is responsible for managing the support functions to ensure the mission modules that make-up and MPs are available. The PSM monitors and reports failures of system-level performance against Participating Acquisition Resource Manager (PARM)-initiated support contract requirements, assessing existing contractual requirements against needs and experiences, and seeks alternatives where contractual adjustments are not possible or feasible to improve performance. The PSM is responsible for data identification, collection, and analysis that correlates hardware and sustainment systems performance. This analysis determines which issues demand product and/or process improvement, what near-term mitigation is possible, and what long-term solutions are needed. In addition to the system contracts made available by the PARMs, the LCS MM Program utilizes In-Service Engineer Agents (ISEAs) and other organic Navy support to provide maintenance planning, technical documentation, engineering services, training support and development, and spares/material support. The LCS MM Program has different transition timelines for each system within a MP from interim to full MPSF support based on development schedule, production deliveries and maturity of logistics documentation. Interim support for a system is/has been provided by the Original Equipment Manufacturer (OEM) or the Government Technical Design Activity (TDA).

c. For Each Acquired System or System Variant:

- i. Quantity to Sustain: 34 (24 Deployable MCM MPs, 10 Deployable SUW MPs)
- ii. First Operational Fiscal Year: FY 2009
- iii. Final Operational Fiscal Year: FY 2049
- iv. Unit Expected Service Life: 25 Years

d. Antecedent System(s) O&S Costs: no antecedent

Operating and Support Costs - Disposal and Unitized Costs**LCS MM****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Current APB Objective and Threshold reflect APB Change 1 approved September 2018 (44 MPs - 10 SUW, 10 ASW, 24 MCM)
 Current Estimate reflects PB 2024 quantities as reported in the LCS MM Selected Acquisition Report for the December 2022 reporting period (34 MPs - 10 SUW, 24 MCM).

Sustainment Factors	System Name: LCS Mission Modules	Antecedent System Name: No antecedent
Quantity to Sustain	34	
Unit of Measure	Mission Package	
Unit Expected Service Life		

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: LCS Mission Modules	Antecedent System Name: No antecedent
Unit-Level Manpower	1,732.0	
Unit Operations	144.0	
Maintenance	4,521.0	
Sustaining Support	603.0	
Continued System Improvements	3,170.0	
Other	918.0	
Total O&S	11,088.0	0.0

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: LCS Mission Modules	Antecedent System Name: No antecedent
Total Disposal	118.0	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	CAPT Godfrey Weekes, PMS 420 12/01/2022
Note:	
Disposal Cost Notes:	
Disposal/Demilitarization Cost Estimate and Source of Estimate: Current Baseline of \$152.4M (APB Change 1 Program Life Cycle Cost Estimate) Current Estimate of \$118.0M (Program Office Estimate)	

Additional O&S Estimate Assumptions:**Sustainment Strategy:**

Independence Variant Hulls will be primarily configured with MCM MPs homeported out of San Diego. Freedom Variant Hulls will be SUW MP configured homeported out of Mayport. Until enough MCM MPs are delivered to outfit all Independence Variant Hulls, some West Coast ships will be outfitted with the SUW MP. The LCS Seaframes retain the flexibility to adjust this division structure as needed to address changing Fleet operational requirements. Division structure has been modified over the past two years to support fleet tasking. The concept of employment for LCS, which includes routine deployments overseas and prepositioned support facilities known as Mission Module Readiness Centers where preventative and corrective maintenance will be performed to supplement the crews ability. There are additional potential theaters of operation [Forward Operating Sites, contributes to strategic deterrence and maintaining material availability.

Antecedent Estimate Assumptions:

No antecedent