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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

## Selected Acquisition Report (SAR)



# Offensive Anti-Surface Warfare Increment 1 (Long Range Anti-Ship Missile) (OASuW Inc 1 (LRASM))

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

Offensive Anti-Surface Warfare Increment 1 (Long Range Anti-Ship Missile)

### DoD Component

Navy

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## Responsible Office

### Program Manager

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## Mission and Description

The U.S. Navy is leveraging Defense Advanced Research Projects Agency (DARPA) demonstration efforts to deliver an air-launched Offensive Anti-Surface Warfare (OASuW) Inc 1 weapon as an early operational capability (EOC) in the required timeframe. OASuW Inc 1 will deliver the Long Range Anti-Ship Missile (LRASM) developed in the demonstration program as an EOC to meet the most urgent air-launched requirement, significantly reducing Joint Force warfighting risks and positioning the DoD to address evolving surface warfare threats. LRASM will remain a viable interim capability pending the determination of the long-term OASuW solution by evolving capability necessary to outpace a dynamic threat. Based on the February 3, 2014 ADM, the OASuW Inc 1/LRASM program is structured using an accelerated model because of the urgency of need. The program leverages DoDI 5000.02 Model 4 to structure the acquisition approach which includes a highly integrated developmental and operational test program in order to meet EOC objectives. Additionally, the ADM directed establishment of a DARPA/Navy/Air Force LRASM Deployment Office (LDO) to manage the OASuW Inc 1 program. LDO, later renamed the Effects Deployment Office (FXDO), uses Knowledge Point decision meetings with an Executive Steering Board chaired by the Service Acquisition Executive to provide focused support and oversight to address the risk of technical or acquisition inefficiencies in order to achieve the fielded capability by the required date. A sole-source contract for Integration and Test was awarded in April 2016 to Lockheed Martin, the prime integrator for the LRASM demonstration and the legacy Joint Air-to-Surface Standoff Missile-Extended Range system, for development and delivery of the LRASM EOC. The urgency of the requirement is the basis for the streamlined approach to accelerate the process. The LRASM weapon system is the force application component of the Anti-Surface Warfare (ASuW) capability servicing threat capital ships. LRASM is integral to realizing the National Defense Strategy of combat-credible military forces to deter war, protect the security of our nation and to enable the Joint Force to win should deterrence fail. The development and acquisition of LRASM has been structured to be fielded at a pace relevant to maintain overmatch against long-term strategic competition. Specifically, LRASM directly contributes to building a more lethal force and is a critical enabler for joint lethality in contested environments; deterring adversaries from aggression; ensuring common domains remain open and maintaining favorable regional balances of power. LRASM will conduct pre-planned and variable strikes against heavily defended surface combatants.

## Executive Summary

### OASuW Inc 1 (LRASM)

#### Program Highlights Since Last Report

The OASuW Inc 1/LRASM program was established as a DoD 5000.02 Model 4 accelerated acquisition program with the goal of delivering a credible, lethal threat against advanced surface combatants by 2018 for the B-1 and 2019 for the F/A-18E/F. The program successfully met EOC on the B-1 in December 2018, which was 10 months ahead of schedule threshold. The program successfully met EOC on the F/A-18E/F in November 2019, 11 months ahead of schedule threshold. The next milestone event is Integrated Test Event (ITE)-12.

Below are the program achievements from 2022:

February 2022 - Remaining missiles on Lot 6 Option added to procurement contract

April 2022 - Lot 2 Deliveries completed

June 2022 - C-3 Engineering Change Proposal delivery order awarded

Aug 2022 - ITE-10 completed

Sep 2022 - ITE-11 completed

Oct 2022 & Dec 2022 - LRASM 1.1 Period of Performance extended for software item closeout until 31 May 2023.

The Procurement Cost breach is due to additional quantities and funding. A Program Deviation Report has been reported. The program expects to add additional quantities authorized by the OSD Program Decision Memorandum.

There are no significant software-related issues with this program at this time.

#### History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Nov 2019	F/A-18E/F EOC was achieved.
Dec 2018	B-1B EOC was achieved.
Sep 2018	KP 6 was approved as a result of meeting the weapon system EOC fielding threshold. The entrance criteria for KP 7 and 8 were also approved.
Mar 2018	KP 5 was approved, authorizing the contract award of Lot 2 Early Operational Capability (EOC) weapons production contract.
Dec 2016	KP 4 satisfying Production Readiness Review requirements and authorizing procurement of Lot 1 Early Operational Capability units.
Jun 2016	Assistant Secretary of the Navy for Research, Development and Acquisition Joint Memorandum for USD(AT&L) certified as required by section 2366b(a)(3)(L) of title 10, United States Code concurring with cost, schedule, technical feasibility, and performance trade-offs have been made with regard to LRASM.
Apr 2016	Contract awarded for Integration and Test.
Feb 2016	KP 3 was held satisfying Milestone B certification and approved update to the Acquisition Strategy.
Jun 2014	Original Acquisition Strategy approved at Knowledge Point (KP) 1.
Feb 2014	Joint Memorandum from Office of the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)) delegated MDA for the OASuW/ Inc 1 a pre-MDAP effort for the Navy. Program was structured as Model 4 accelerated acquisition.

**Schedule****OASuW Inc 1 (LRASM)**

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
SETR 4.0 Complete	Jun 2016	Jun 2016	Jun 2016	Jun 2016	
SETR 4.0 (Start)				Jun 2016	
B-1 Early Operational Capability Complete	Sep 2018	Dec 2018	Dec 2018	Dec 2018	
B-1 Early Operational Capability (Start)				Dec 2018	
SETR 3.0 Complete	Sep 2015	Sep 2015	Sep 2015	Sep 2015	
SETR 3.0 (Start)				Sep 2015	
Knowledge Point 3 Complete	Feb 2016	Feb 2016	Feb 2016	Feb 2016	
Knowledge Point 3 (Start)				Feb 2016	
F/A-18E/F Early Operational Capability Complete	Sep 2019	Nov 2019	Nov 2019	Nov 2019	
F/A-18E/F Early Operational Capability (Start)				Nov 2019	
SETR 2.0 Complete	Sep 2014	Sep 2014	Sep 2014	Sep 2014	
SETR 2.0 (Start)				Sep 2014	

**Notes****Deviation Explanation**



## Performance

### OASuW Inc 1 (LRASM)

Performance Characteristics					
Milestone Baseline	Current Baseline Objective/Threshold		Demonstrated Performance	Current Estimate/Actual	Deviation
<b>(KPP) - Key Cost Parameter</b>					
	USG Only	(T=O) USG Only	TBD	USG Only	
<b>(APA) - Key Schedule Parameter (B-1 / F/A-18E/F)</b>					
	4th Quarter FY 2018/2019	4th Quarter FY 2019/2020	B1 (Dec. 2018)F-A 18 (Nov 2019)	Dec 2018 / Nov 2019	
<b>(KSA) - Material Availability</b>					
	more than or equal to 90% availability	More than or equal to 80% availability	TBD	0.949	
<b>(KSA) - Operational Availability</b>					
	more than or equal to 98% availability	more than or equal to 90% availability	TBD	91.7% Predicted	
<b>(APA) - Operations and Support (O&amp;S) Cost</b>					
	Less than or equal to \$413M	(T=O) Less than or equal to \$413M	300.4	Threshold =Objective	
<b>(APA) - Service Life</b>					
	30 years	15 years	TBD	15 years	
<b>(APA) - Weapon Load-Out (B-1/F/A-18 E-F)</b>					
	24/4	(T=O) 24/4		Threshold = Objective	
<b>(KSA) - Weapon System Reliability</b>					
	greater than or equal to 190 hrs	more than or equal to 30 hrs	TBD	92.7 Predicted	

### Requirement Reference

CDD for OASuW Weapon System Increment approved by JROCM 033-15 March 25, 2015

### Deviation Explanation

No deviations for this program/subprogram

### Notes

Classified Performance Information is provided in the classified annex to this submission

## Acquisition Budget Estimate

### OASuW Inc 1 (LRASM)

#### 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	2014	1,175	1,394.7	1,534.2	1,406.9	1,504.6	Yes
Procurement	2014	292.3	1,549.3	1,678.7	3,000.5	4,034.7	Yes
MILCON	2014	0	0	0			
Acq. O&M	2014	0	0	0			
Total		1,467.3	2,944.0	3212.9	4,407.4	5,539.3	
PAUC	2014	11.833	5.841	6.375	3.580	4.500	
APUC	2014	2.657	3.175	3.440	2.470	3.321	

#### Appropriation Category Deviation Explanations

RDT&E	RDTE cost increase from APB objective is due to the LRASM 1.1 capability improvements contract awarding at a higher cost than originally estimated. LRASM 1.1 capability improvements will complete in FY 2023 as the program will be applying Quick Reaction Assessment Testing results to a fielding decision for the LRASM 1.1 configuration and progressing to operational test.
Procurement	Updated the USAF procurement values. Procurement cost increases (from baseline) due to additional missile quantities required by USN beyond their original requirements.

#### PAUC Deviation Explanation

#### APUC Deviation Explanation

#### Budget Notes

#### Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	16	16
Procurement	488	1215

#### Quantity Notes

PB24: 1215 AURs (727 USN and 488 USAF)

**Unit Cost****OASuW Inc 1 (LRASM)****Current UCR Baseline and Current Estimate (Base-Year Dollars)**

Category (\$M) Base Year:2014	Current UCR Baseline	Current Estimate	% Change
<b>Program Acquisition Unit Cost</b>			
Cost	2,944.0	4,407.4	
Quantity	504	1231	
Unit Cost	5.841	3.580	-38.70%

**Average Procurement Unit Cost**

Cost	1,549.3	3,000.5	
Quantity	488	1,215	
Unit Cost	3.175	2.470	-22.22%

**Original UCR Baseline and Current Estimate (Base-Year Dollars)**

Category (\$M) Base Year:2014	Original UCR Baseline	Current Estimate	% Change
<b>Program Acquisition Unit Cost</b>			
Cost	1,467.3	4,407.4	
Quantity	124	1231	
Unit Cost	11.833	3.580	-69.74%

**Average Procurement Unit Cost**

Cost	292.3	3,000.5	
Quantity	110	1,215	
Unit Cost	2.657	2.470	-7.06%

**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****Impacts of Performance Changes on Unit Cost****Actions Taken or Proposed to Control Future Cost Growth**

**Risk and Sensitivity Analysis**

**OASuW Inc 1 (LRASM)**

Risk and Sensitivity Analysis		
Current Procurement Cost(December - 2022)		
Original Baseline Estimate (June - 2016)		
A Joint Component Cost Estimate was completed to support Knowledge Point (KP) 3 dated February 19, 2016 and was completed at the 50% confidence level. There are no known cost risks at this time.		
Current Baseline Estimate (September - 2020)		

Schedule Risk		
Technical Risks		
Current	December 12, 2021	There are no procurement cost risks.

**Low Rate Initial Production****OASuW Inc 1 (LRASM)**

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	3/31/2016	2/24/2023
<b>Approved Quantity</b>	110	1,215
<b>Reference</b>	OASuW Increment 1 KP	PB2024 Budget Exhibit
<b>Start Year</b>	2017	2017
<b>End Year</b>	2019	2028

**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 because LRASM continues to be an interim solution pending determination of the long-term OASuW/Inc 2 solution.

**Notes**

As a result of PB2024 issued quantities, adjustments have been made to the program increasing the required quantity to 1,215 All Up Rounds (AURs) (727 USN and 488 USAF).

**Contracts & Efforts**

Contract Data	
Contract Number	N0009-19-G-0011
Effort Number	4
Modification Number	P00016
Award Date	07/03/2019
Definitization Date	01/28/2021
Order Number	N00019-19-F-4037
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	LRASM BOA Contract (LRASM 1.1 Delivery Order)
Contract Address	Orlando, FL
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	December 23, 2022
Work Start Date	July 03, 2019
Technical Data Rights	
Work Completed	

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

Initial Target Price	Current Target Price	
\$121.05	\$124.16	
Initial Ceiling Price	Current Ceiling Price	
121.00	N/A	
Contractor EAC	PM EAC	
\$113.5	\$111.88	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
\$111.88	\$101.24	\$106.95
BCWS	Cost Variance	Schedule Variance
\$106.04	-\$4.8	-\$5.71

**Contract Notes:**

LRASM 1.1 capability improvement efforts as the program transitions to final testing and delivery of the LRASM 1.1 Early Operational Capability (EOC) to the Fleet. (Previous report had Delivery Order as Contract number. Corrected.)

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

The unfavorable cumulative cost variance is mainly driven by developmental test and evaluation due to the extension \Flying Test Bed for ITE-12, unexpected complexities with various testing efforts, and technical equipment and software issues. In addition, air vehicle software effort associated with Algorithm changes, along with 13.1.0 build/test efforts, 13.1.2 completion, Software Integrated Laboratory and ITE-10 activity and Level of Effort support contributed to the variance.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

The unfavorable cumulative schedule variance is mainly driven by seeker assemblies due to ongoing down range performance investigations which have required more effort than originally anticipated and have continued through the current period of performance extension.

Contract Data	
Contract Number	FA8682-20-C-0003
Effort Number	5
Modification Number	P00012
Award Date	04/07/2020
Definitization Date	04/07/2020
Order Number	
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	LRASM Production (Lot 3)
Contract Address	Orlando, FL
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	October 05, 2022
Work Start Date	
Technical Data Rights	
Work Completed	98.77%

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$165.1	\$165.2	
Initial Ceiling Price	Current Ceiling Price	
\$176.2	\$176.4	
Contractor EAC	PM EAC	
\$149	\$161.6	
Initial Quantity	Current Quantity	Delivered Quantity
48	49	41
BAC	BCWP	ACWP
\$146	\$144.2	\$140.8
BCWS	Cost Variance	Schedule Variance
\$145.9	\$3.4	-\$1.7



**Contract Notes:**

This contract is at greater than 90% complete. Modification P00012 awarded on 10/05/22 to incorporate an updated Conditions Attachment into the contract at no change in contract value. The change to this attachment was to update the Post Ship-In Place Instructions. AUR deliveries end on 6 April 23 but the contract still has ongoing performance until 6 Oct 2023. EVM updated as well.

This will be the last report for this contract.

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

Cumulative cost performance is favorable mainly due to efficient production performance. In addition, there was a reduction in non-recurring expenses, raw material, and normal production allowance, as well as favorable placement of parts on purchase order.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

Cumulative unfavorable schedule variance is mainly due to AUR assembly and Radio Frequency issues.

Contract Data	
Contract Number	FA8682-21-C-0004
Effort Number	6
Modification Number	P00018
Award Date	02/22/2021
Definitization Date	02/22/2021
Order Number	
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	LRASM Production (Lot 4/5/6)
Contract Address	Orlando, FL
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	October 05, 2022
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$414.3	\$550	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
\$550	\$550	
Initial Quantity	Current Quantity	Delivered Quantity
137	180	0
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

**Contract Notes:**

Lot 6 Option was exercised. Total quantity for this contract: 188 missiles. The difference from the Initial Target Price to the Current Target Price is due to the added funding for the additional option. Modification notes: FFP Contract. P00016 awarded August 11, 2022 incorporated updated tooling part numbers, DD254, and Performance Based Payments. This modification also corrected CLIN 5002 (Data) Period of Performance from September 22, 2025 to September 30, 2025. P00017 awarded September 27 2022 realigned P-8 funding. P00018 awarded October 5, 2022 incorporated an updated Conditions Attachment into the contract at no change in contract value. The change to the attachment was to update the Post Ship-In Place Instructions.

**Factors Contributing to Cost Variance and Projected Effects on Program Cost:**

Cost Variance reporting is not required on this Firm Fixed Price (FFP) contract.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

Schedule Variance reporting is not required on this (FFP) contract.

Contract Data	
Contract Number	FA8682-19-C-0010
Effort Number	3
Modification Number	P00022
Award Date	11/15/2018
Definitization Date	11/15/2018
Order Number	
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	LRASM Production Contract (Lot 2)
Contract Address	Orlando, FL
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	November 16, 2022
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

**Contract Notes:**

This contract is complete. The remaining duration is for data CLIN closeout. Estimated Completion Date 12/31/2023. The latest EVM data for this contract was included in the last Unit Cost Report.

This will be the last report for this contract.

**Factors Contributing to Cost Variance and Projected Effects on Program Costs: N/A**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule: N/A**

### External Government Activities

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

**Deliveries and Expenditures****OASuW Inc 1 (LRASM)**

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	15	15	16	97.3%
Production	125	125	629	19.87%
Total Program Quantity Delivered		140	645	21.71%

**Expended and Appropriated (TY \$M)**

Years Appropriated to date: 10

Total Years Appropriated Funding (Current Baseline): 15

Percent Years Appropriated: 66%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 68.41%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 50.19%

Total Acquisition Cost: 5,539.3

Deliveries & Expenditures Notes:

## Operating and Support Costs

### OASuW Inc 1 (LRASM)

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#### *O&S Cost Breakdown:*

Category (BY\$ Million)	LRASM
Unit-Level Manpower	.0
Unit Operations	.0
Maintenance	2.7
Sustaining Support	11.1
Continued System Improvements	2.7
Other	0
<b>Total</b>	<b>16.5</b>

Cost Estimate Source: POE dated January 15, 2020

O&S Cost Notes:



### Total Program O&S Cost Compared with Baseline

	Current Baseline		Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
	Objective (BY\$M)	Threshold (BY\$M)			
<b>Total O&amp;S</b>	318.2	350	300.40	392.4	

Note:

a. Disposal/Demilitarization Cost Estimate and Source of Estimate: POE  
 Disposal/Demilitarization Total Cost (BY 2014 \$M): 12.9

The assumption for Disposal/Demilitarization costs is that no missiles have been expended/fired through the life of the program. Therefore, all 629 units will be disposed.

b. Sustainment Strategy: LRASM is a war-reserved asset and does not require periodic or scheduled depot maintenance. The initial Joint Air-to-Surface Standoff Missile (JASSM) product support strategy was to employ a warranty for the life of the weapon. The current JASSM/JASSM-Extended Range (ER) product support strategy has no warranty and a two-level maintenance concept will address parts, labor, failure analysis and correction, disposal of failed missiles or components, and all transportation within the continental United States. Organic depot repair capability does not exist within DoD, and the assets' specialized coating can only be repaired by the manufacturer.

Leveraging off of the current JASSM/JASSM-ER strategy, the weapon system will be maintained under a two-level maintenance concept defined above: organizational and depot levels. Qualified maintenance personnel perform pre-flight and post-flight inspections in accordance with verified manuals and checklists. Missiles are maintained in a serviceable condition at the organizational level through storage monitoring inspections, returned munitions inspections and limited corrective maintenance. Organizational corrective repair actions are limited to minor repairs such as container desiccant replacement, missile surface paint touch up, container latch replacement, and initiation of Built in Test (BIT) and missile software reprogramming using the Common Munitions. BIT Reprogramming Equipment, AN-GYQ/79 test set with Ethernet. Limited provisioning will be conducted to include container parts and several external components on the missile. All deficiencies beyond the scope of technical manuals will be reported through All Weapons Information System for Navy and the Tactical Munitions Reporting System for the Air Force. Final disposition instructions will be provided by the Program Office.

Under the anticipated sustainment strategy, unplanned depot level maintenance of LRASM will be performed by the contractor as necessary. The service life requirement is 15 years. The LRASM Deployment Office will determine the most efficient way to handle supportability after the 15-year expires. The requirement to conduct periodic BIT (every 24 months) will be performed in the field and reported to the program office for reliability assessment purpose

c. For Each Acquired System or System Variant: 1. Quantity to Sustain: 629; ii. First Operational Fiscal Year: 2018; iii. Final Operational Fiscal Year: 2042; iv. Unit Expected Service Life: 15.

d. Antecedent System(s) O&S Costs: i. No Antecedent. JASSM is not considered to be an Antecedent to LRASM as the internal components are substantially different.

### O&S Cost Deviation Explanation

***Operating and Support Costs - Disposal and Unitized Costs*****OASuW Inc 1 (LRASM)****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Sustainment Factors	System Name:	Antecedent System Name:
Quantity to Sustain	1,215	
Unit of Measure	Missile	
Unit Expected Service Life	15	

**Base Year:** 2014

	System Name:	Antecedent System Name:
Unit-Level Manpower	0.0	
Unit Operations	0.0	
Maintenance	2.7	
Sustaining Support	11.1	
Continued System Improvements	2.7	
Other		
<b>Total O&amp;S</b>	<b>16.5</b>	0.0

**Disposal/Demilitarization Cost Estimate**

(Base Year \$Millions)	System Name:	Antecedent System Name:
Total Disposal	12.9	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	01/15/2020
Note:	
Disposal Cost Notes:	
Additional O&S Estimate Assumptions:	
Sustainment Strategy:	

**Antecedent Estimate Assumptions:****Disposal Cost Notes:**

The assumption for Disposal/Demilitarization costs is that no missiles have been expended/fired through the life of the program. Therefore, all 1,215 units will be disposed.

**Additional O&S Estimate Assumptions:**

The O&S Costs reported in this report are reflective of a total of 1,215 production units. There is no intention of sustaining the 16 developmental units.

LRASM is a war-reserved weapon with limited Operational and Intermediate level maintenance, and it is anticipated that the weapon will not be captive carried. Should any system failures occur, the weapon will be shipped back to the Original Equipment Manufacturer (OEM) for repairs.

**Cost analysis assumes a unit repair costs as follows:** Joint Air-to-Surface Standoff Missile (JASSM) historical repair hours per repair were used, adjusted with a complexity factor from U.S. Air Force subject matter experts and Lockheed Martin labor rates. Depot Material Cost (not Replenishment Spares) are based on JASSM historical repair data.

**Cost analysis assumes a depot replenishment spare cost as follows:** JASSM historical repair data and LRASM production estimate costs were used to estimate cost of Replenishment Spares per repair.

For failure rates, the cost analysis assumes failures based on expected Operational Availability (Ao) percent applied to population undergoing biannual Built-in Test (BIT) check. This will drive a high depot repair rate. Failures are based on expected Storage Mean Time Between Failures (MTBF) and metrics from Reliability and Maintainability engineers. The estimate used Benign Storage MTBF for U.S. Air Force weapons. The estimate used Benign Storage with Vibe MTBF for Navy weapons (ships have vibration when underway). Metrics are similar to JASSM historical experience, and yield far fewer expected failures than applying Ao to every BIT check cycle.

**Antecedent Estimate Assumptions:**

No Antecedent. JASSM is not considered to be an Antecedent to LRASM as the internal components are substantially different.