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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



Joint Air-to-Ground Missile (JAGM)

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

Joint Air-to-Ground Missile

DoD Component

Army

Responsible Office

Program Manager

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Mission and Description

The JAGM program is an Army-led, Acquisition Category (ACAT) 1C Major Defense Acquisition Program (MDAP) with joint interest with the Navy, Marine Corps, and Air Force. JAGM is the next generation, multi-mode, air-to-ground munition replacing legacy HELLFIRE (HF) and HF Longbow munitions. JAGM will be used for destruction of high-value land and maritime targets, moving or stationary, and is capable of being fired from any platform currently firing HF from a US Army-issued M299 launcher. JAGM utilizes a HF back-end (propulsion, warhead, and control system) with a new-design, Millimeter Wave (MMW) and Semi-Active Laser (SAL), multi-mode guidance section. The multi-mode capability provides fire-and-forget and precision-point targeting as well as unique, blended modes of each, for improved capability over legacy munitions.

Executive Summary

JAGM

Program Highlights Since Last Report

The JAGM requirements are stable. Funding is adequate to meet cost and performance objectives established in the current approved Acquisition Program Baseline (APB). Full Rate Production (FRP) Milestone decision successfully executed August 30, 2022; with Acquisition Decision Memorandum (ADM) signed September 21, 2022. The contractor is delivering ahead of schedule on the Low-Rate Initial Production (LRIP) 3 contract. Missile performance and missile tests to date have been successful. The JAGM missile currently has no significant software-related issues.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Sep - 2022	Full Rate Production (FRP) milestone ADM signed September 2022.
Apr - 2021	LRIP 4 and 5 were awarded on March 11, 2021 and April 30, 2021, respectively.
Aug - 2020	Due to a schedule delay on the Navy AH-1Z platform integration and testing, the milestones for Navy Initial Operational Capability (IOC) and FRP were revised. On August 17, 2020, the Army Acquisition Executive (AAE) authorized an additional 3,000 LRIP missiles until the Navy completes Initial Operational Test & Evaluation (IOT&E) requirements currently scheduled for September 2021. There are no performance issues with the missile itself; however, without all IOT&E objectives completed, the program does not meet statutory requirements for FRP. The AAE also approved the updated APB for the Navy IOC and FRP milestones. The APB re-baselined the Navy IOC objective date to September 2021, and threshold date to March 2022, and the FRP objective date to March 2022, and threshold date to September 2022.
Jun - 2020	During September through October 2019, the AGMS Product Office administered an MRL 9 assessment to support the FRP DR to assess the industrial base and prime contractor capabilities. The assessment resulted in 60 of 66 sub-thread criteria rated at MRL 9. The JAGM program established and worked a maturation plan which resulted in the remaining 6 sub-threads achieving an MRL 9 by June 2020.
Dec - 2019	On December 13, 2019, the JAGM Product Office awarded a Rate Ramp CLIN to increase the facilitization and production capacity from 600 missiles per year to 1,200 missiles per year.
Dec - 2019	The JAGM Product Office completed seven missile launches in stressing, realistic, tactical conditions from Apache AH-64E version 6 at Yuma Proving Ground, AZ on December 3-12, 2019. The collected data supports system evaluation, Safety Confirmation, Airworthiness Release, and validation and accreditation of the system simulation. All shots were successful and will be assessed for lethality. These results will support the Operational Evaluation Report and the Beyond LRIP Report from office of the Director, Operational Test and Evaluation (DOT&E).
Nov - 2019	On November 27, 2019, the JAGM Product Office awarded LRIP 3 for a quantity of 825 missiles (750 Army and 75 Navy).
Jul - 2019	Live Fire Test and Evaluation (LFT&E) lethality and the Live Fire strategy commitment were successfully completed on July 7, 2019. The Army Test & Evaluation Command (ATEC) and the office of the Director, Operational Test and Evaluation (DOT&E) will evaluate all shots for lethality. Test results will support the Operational Evaluation Report (OER) from ATEC and the Beyond LRIP Report from DOT&E.

May - 2019	JAGM and Apache PMs conducted JAGM IOT&E & Apache AH-64E Version 6 (V6) Follow-on Operational Test & Evaluation II (FOT&E II) on April 24 through May 7, 2019. Eight total JAGM flight tests, two maritime and six land, were successfully completed. JAGM has demonstrated full capability on an AH-64E and successfully completed IOT&E.
Mar - 2019	JAGM achieved IOC in March 2019.
Jan - 2019	On January 24-29, 2019, the JAGM Product Office, with support from Yuma Proving Ground, Redstone Test Center, U.S. Army Combat Capabilities Development Command Aviation & Missile Center, the Apache Project Office, Boeing, and Lockheed Martin, conducted six JAGM launches from the fully integrated Apache. These tests utilized the AH-64Ev6 with the JAGM Pilot Vehicle Interface that provides optimized cockpit selections. On January 26, 2018, JAGM successfully completed Cooperative Vulnerability and Penetration Assessment (CVPA) and Cybersecurity Adversarial Assessment (AA).
Dec - 2018	On December 17, 2018, the JAGM Product Office awarded LRIP 2B for a quantity of 450 missiles (397 Army, six Navy, and 47 other customers). On December 19, 2018, JAGM received its first LRIP production missiles.
Sep - 2018	On September 11, 2018, LRIP 2 awarded a quantity of 600 missiles (502 Army and 98 Navy).

Schedule

JAGM

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B Complete	Jul 2015	Jul 2015	Jul 2015	Jul 2015	
CDR Complete	Jan 2016	Jan 2016	Jan 2016	Jan 2016	
Milestone C Complete	Mar 2018	Jun 2018	Jun 2018	Jun 2018	
Army IOC Complete	Sep 2018	Mar 2019	Mar 2019	Mar 2019	
Navy IOC Complete	Sep 2019	Sep 2021	Mar 2022	Mar 2022	
FRP Decision Complete	Mar 2020	Mar 2022	Sep 2022	Sep 2022	

Notes

Deviation Explanation

No deviations for this program/subprogram

Performance

JAGM 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)Carrier/Shipboard Operability - Compatible with carrier/shipboard operations without degrading other Naval operations					
	Yes	(T=O) Yes	Shipboard Weapons Integration Team Report completed January 10, 2018	Yes	
(KPP)System Survivability - Cyber Survivability					
	No higher than Low	No higher than Moderate	Adversarial Assessment conducted January 26, 2018	No higher than Moderate	
(KPP)System Survivability - E3 and CBRN					
	Host A/C compatibility, MIL-STD-464 (HERO, EMC), MIL-STD-461, and MIL-STD 2169 (HEMP)	(T=O) Host A/C compatibility, MIL-STD-464 (HERO, EMC), MIL-STD-461, and MIL-STD 2169 (HEMP)	E3 completed March 23, 2018; CBRN completed March 2017	Host A/C compatibility, MIL-STD-464 (HERO, EMC), MIL-STD-461, and MIL-STD 2169 (HEMP)	
(KPP)Interoperability - Interoperable with joint rotary and fixed wing (manned and unmanned) aircraft					
	MQ-1C Gray Eagle, MH-60M DAP, AH-6M, MH-60S, MH-60R, AH-64D, F/A-18 E/F, F-35, F/A-18 A-D, KC-130J Harvest Hawk, AC-130J, AV-8B, V-22, Future UAS, A-10, F-16, MQ-9	AH-64E, AH-1Z	Federated SW demo: MQ-1C - 25 May 2016, AH-64D - 07 Dec 2016, AH-64E -24 Jan 2017, AH-1Z -13 Feb 2018, Integrated SW demo: AH-64E V6 23 Jan 2019	Meets threshold. AH-64E, AH-1Z	
(KPP)Interoperability - Laser Designation					
	Compatible with standard Joint aviation platform laser designation systems, including PRF and PIM codes.	(T=O) Compatible with standard Joint aviation platform laser designation systems, including PRF and PIM codes.	Completed compatibility testing March 13, 2018	Meets Objective. Compatible with standard Joint aviation platform laser designation systems, including PRF and PIM codes.	
(KPP)Range - Maximum Range (FW)					

	28 km (15 nm)	None	TBD	None	
(KPP)Range - Maximum Range (RW)					
	>=16 km	8 km	Demonstrated March 28, 2018	8 km	
(KPP)Range - Minimum Engagement Range (FW)					
	2 km (1 nm)	None	TBD	None	
(KPP)Range - Minimum Engagement Range Rotary Wing (RW)					
	500 m	(T=O) 500 m	Demonstrated February 1, 2018	500 m	
(KPP)Training - Support development of all training packages and training devices					
	Yes	(T=O) Yes	NET conducted Feb 11, 2019 - March 20, 2019	Yes	

Requirement Reference

JAGM CPD for JAGM Increment 1 dated May 10, 2018.

Deviation Explanation

No deviations for this program/subprogram

Notes

In the JAGM CPD, section 5.2.3 (KPP #5 - Range), it is stated, "There are no fixed wing requirements for JAGM Increment 1 since fixed wing platforms are objective." Therefore, there are no estimates at this time.

Acquisition Budget Estimate

JAGM

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	2018	1,074.9	1,074.9	1,182.4	1,090.1	1,020.1	
Procurement	2018	5,951.5	5,951.5	6,546.7	5,573.5	7,182.2	
MILCON	2018	0	0	0			
Acq. O&M	2018	44	44	48.4	46.8	59.3	
Total		7,070.4	7,070.4		6,710.4	8,261.6	
PAUC	2018	.267	.267	.294	.254	.313	
APUC	2018	.226	.226	.249	.212	.273	

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

CAPE Cost Risks: No new programmatic risks were identified in the latest POE.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	118	118
Procurement	26,319	26,319
O&M-Acquired		

Quantity Notes

Unit Cost**JAGM**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2018	Current UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	7,070.4	6,710.4	
Quantity	26,437	26,437	
Unit Cost	.267	.254	-4.93%
Average Procurement Unit Cost			
Cost	5,951.5	5,573.5	
Quantity	26,319	26,319	
Unit Cost	.226	.212	-6.30%
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2015	Original UCR Baseline	Current Estimate	% Change
Program Acquisition Unit Cost			
Cost	5,669.9	5,043.4	
Quantity	26,437	26,437	
Unit Cost	.214	.190	-11.21%
Average Procurement Unit Cost			
Cost	4,691.4	4,247.1	
Quantity	26,319	26,319	
Unit Cost	.178	.161	-9.55%
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**JAGM**

Classified Risk information is provided in the classified annex to this submission.

Risk and Sensitivity Analysis
Current Procurement Cost (December - 2022)
<p>The JAGM AUR unit cost is highly sensitive to procurement quantities. The current fiscally constrained environment is driving JAGM to lower production quantities in line with the minimum sustainment rate, which in turn is raising the missile unit cost. The JAGM Program is working with other services, including the Navy and Air Force, as well as FMS channels, to gauge the potential for future year procurements that would raise production quantities and lower the missile unit cost.</p>
Original Baseline Estimate (September - 2015)
<p>The July 29, 2015, JAGM Milestone B ADM directs the Army and Navy to fund the program to the level of the OSD CAPE ICE. This estimate, like all previous OSD CAPE estimates, was built upon a product-oriented work breakdown structure, is based on historical cost information to the maximum extent possible, and, most importantly, is based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the department was successful.</p>
Current Baseline Estimate (August - 2020)

Schedule Risk		
Technical Risks		

Low Rate Initial Production

JAGM

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	07/29/2015	08/17/2020
Approved Quantity	2,631	5,631
Reference	JAGM Milestone B ADM	JAGM LRIP ADM
Start Year	2017	2017
End Year	2018	2021

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 as a result of the August 17, 2020, ADM, which authorized the program to procure up to 3,000 additional LRIP missiles above the 2,631 authorized in the Milestone C ADM, in order to support Service and the FMS requirements until a FRP decision in FY 2022. FRP decision was received September 2022.

Notes

On June 15, 2018, the JAGM Milestone C ADM approved the execution of the LRIP quantity of 2,631 missiles established at Milestone B.

Contracts & Efforts

Contract Data	
Contract Number	W31P4Q-19-C-0071
Effort Number	
Modification Number	P00101
Award Date	07/31/2019
Definitization Date	07/31/2019
Order Number	
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	AGMS Engineering Services
Contract Address	Orlando, FL
Contracting Office	ACC Redstone
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	December 08, 2022
Work Start Date	July 31, 2019
Technical Data Rights	Government Purpose License Rights to Technical Data--Noncommercial Items & Software
Work Completed	

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

Initial Target Price	Current Target Price	
\$0.7	\$162.6	
Initial Ceiling Price	Current Ceiling Price	
\$327.8	\$367	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP

BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Type(s): CPFF/FFP. Technical Data Rights are a mix and consist of the following: Government Purpose License Rights to Technical Data--Noncommercial Items & Software, Limited Rights to Technical Data--Non-Commercial Items Only, Restricted Rights to Technical Data--Noncommercial Software Only, Unlimited Rights to Technical Data--Noncommercial Items & Software EVM is waived, per DASM memo dated October 13, 2021.

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	W31P4Q-15-C-0102
Effort Number	
Modification Number	P00139
Award Date	07/31/2015
Definitization Date	07/31/2015
Order Number	
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	EMD and LRIP and Deployment
Contract Address	Orlando, FL
Contracting Office	ACC Redstone
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	May 12, 2022
Work Start Date	July 31, 2015
Technical Data Rights	Government Purpose License Rights to Technical Data--Noncommercial Items & Software
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$195.2	\$451	
Initial Ceiling Price	Current Ceiling Price	
\$201.3	\$471.3	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
1155	2366	1953
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

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Contract Notes:

Contract Type(s): FPIF/FFP. Technical Data Rights are a mix and consist of the following: Government Purpose License Rights to Technical Data--Noncommercial Items & Software, Limited Rights to Technical Data--Non-Commercial Items Only, Restricted Rights to Technical Data--Noncommercial Software Only, Unlimited Rights to Technical Data--Noncommercial Items & Software Cost Variance and Schedule Variance reporting are not required on this FPIF contract due to an EVM waiver granted by the DAE on October 17, 2014, in the JAGM Development Request for Proposals Release Decision ADM.

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	W31P4Q-18-C-0130
Effort Number	
Modification Number	P00103
Award Date	09/29/2018
Definitization Date	09/29/2018
Order Number	
CAGE Code/CAGE Legal Name	04939/Lockheed Martin Corporation
Contract Title	HELLFIRE Buy 17 FY18-FY21 Production Contract
Contract Address	Orlando, FL
Contracting Office	ACC Redstone
Supported Phase	Production
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	September 26, 2022
Work Start Date	October 01, 2018
Technical Data Rights	Government Purpose License Rights to Technical Data--Noncommercial Items & Software
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$537.1	\$3,163.3	
Initial Ceiling Price	Current Ceiling Price	
\$665.2	\$4,157.3	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
1896	1896	0
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

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Contract Notes:

Contract Type(s): FFP/FPIF/CPFF. Contract is a combined JAGM and HELLFIRE missile contract. Quantity is JAGM only, but funding is combined JAGM HELLFIRE. Contract type is broken out as follows: FPIF Missile CLINs FFP Container CLINs, Obsolescence/Last Time Buy (LTB) CLINs (if applicable) CPFF Tired Tooling CLINs JAGM EVM Waiver was approved on 19 Aug 2019. Technical Data Rights are a mix and consist of the following: Government Purpose License Rights to Technical Data--Noncommercial Items & Software, Limited Rights to Technical Data--Non-Commercial Items Only, Restricted Rights to Technical Data--Noncommercial Software Only, Unlimited Rights to Technical Data--Noncommercial Items & Software.

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

JAGM

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	118	118	118	100.00%
Production	1,798	1,835	26,319	6.97%
Total Program Quantity Delivered	1,916	1,953	26,437	7.39%

Expended and Appropriated (TY \$M)

Years Appropriated to date: 14

Total Years Appropriated Funding (Current Baseline): 45

Percent Years Appropriated: 31.11%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 23.20%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 25.60%

Total Acquisition Cost: 8,261.6

Deliveries & Expenditures Notes:

Operating and Support Costs

JAGM

Classified Operating and Support Cost information is provided in the classified annex to this submission.

O&S Cost Breakdown:

Category (BY\$ Million)	JAGM
Unit-Level Manpower	
Unit Operations	
Maintenance	128.3
Sustaining Support	249.6
Continued System Improvements	31.8
Other	.0
Total	409.6

Cost Estimate Source: CCE dated May 15, 2018

O&S Cost Notes:

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	400.9	441	409.6	728.0	

Note:

O&S Cost Deviation Explanation

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

Sustainment Factors	System Name: JAGM	Antecedent System Name:
Quantity to Sustain	26,319	
Unit of Measure	EA	
Unit Expected Service Life	25	

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$K)	System Name: JAGM	Antecedent System Name:
Unit-Level Manpower		
Unit Operations		
Maintenance	0.2	
Sustaining Support	0.5	
Continued System Improvements	0.4	
Other		
Total O&S	1.2	0.0

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: JAGM	Antecedent System Name:
Total Disposal	3.8	

Cost Estimate Source - Disposal	
Type:	Component Cost Position
Approval Authority and Date:	Director, Cost Assessment & Program Evaluation 08/24/2022
Note:	
Disposal Cost Notes:	
Disposal cost for demil and disposal transport for all missiles produced.	
Additional O&S Estimate Assumptions:	
Sustainment Strategy:	

Antecedent Estimate Assumptions: