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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	6.314	7.566	2.134	-	2.134	-	-	-	-	-	-
JAGM: Joint Air-To-Ground Missile (JAGM)	-	6.314	7.566	2.134	-	2.134	-	-	-	-	-	-

Program MDAP/MAIS Code: 355

A. Mission Description and Budget Item Justification

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.

The Fiscal Year (FY) 2022 dollars in the amount of \$2.134 million will continue the objective platform review, analysis, and threat management and complete development and test and evaluation of Captive Air Training Missile (CATM).

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	6.585	8.891	2.161	-	2.161
Current President's Budget	6.314	7.566	2.134	-	2.134
Total Adjustments	-0.271	-1.325	-0.027	-	-0.027
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-1.000	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.271	-0.325	-	-	-
• Adjustments to Budget Years	-	-	-0.027	-	-0.027

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)				Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
JA6: Joint Air-To-Ground Missile (JAGM)	-	6.314	7.566	2.134	-	2.134	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Air-to-Ground Missile (JAGM) program is an Army-led, Acquisition Category (ACAT) IC Major Defense Acquisition Program (MDAP) with joint interest with the United States (U.S.) Air Force, U.S. Marine Corps (USMC), and U.S. Navy. The JAGM is the next generation of aviation-launched, fire and forget missiles to replace the HELLFIRE Laser and Longbow radar missiles. JAGM will be used by joint service aircraft for destruction of high value stationary, moving, and relocatable land and maritime targets from standoff range in day, night, adverse weather, and obscured battlefield conditions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2020	FY 2021	FY 2022
<p>Title: Full Rate Production (FRP) Decision Preparation</p> <p>Description: The Air-to-Ground Missile Systems (AGMS) Product Office and Other Government Agencies (OGAs) will confirm that JAGM is producible, as well as operable, safe, and logistically supportable.</p> <p>FY 2022 Plans: Confirm documentation to support a March FY22 FRP decision.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increase from FY21 to FY22 due to Full Rate Production Decision Review rescheduled from June 2020 to March 2022.</p>	0.241	-	0.284
<p>Title: Integration and Counter Measure/Threat Management</p> <p>Description: The Air-to-Ground Missile Systems (AGMS) Product Office and Other Government Agencies (OGAs) will continue objective platform review, analysis, and threat management. The AGMS Product Office and OGAs will perform technical assessments, concept studies, prepare documentation, and perform demonstrations and risk reduction efforts.</p> <p>FY 2021 Plans: Continue software testing and review and analysis of objective Army platforms.</p> <p>FY 2022 Plans: Continue software testing and review and analysis of objective Army platforms.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>	3.631	3.789	0.161

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Funding decreased from FY 2021 to FY2022 due to reprioritization of efforts.			
Title: Captive Air Training Missile (CATM) Development Description: The CATM is used for captive flight training and for qualification of aircrews to employ tactical missiles in combat. The Air-to-Ground Missile Systems (AGMS) Product Office will develop an inert missile configuration that will meet training needs. FY 2021 Plans: Continue JAGM CATM development of hardware and software. FY 2022 Plans: Complete JAGM CATM development. FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased from FY 2021 to FY2022 due to completion of Captive Air Training Missile (CATM) development.	2.442	1.335	0.486
Title: Captive Air Training Missile (CATM) Testing Description: The Air-to-Ground Missile Systems (AGMS) Product Office and Other Government Agencies (OGAs) will continue development testing and qualification of the JAGM CATM; achieve air worthiness on threshold platforms. FY 2021 Plans: Continue Test and Evaluation and develop documentation for Air Worthiness Release. FY 2022 Plans: Verify AH-64E Software Integration through captive carry and environmental testing. FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased from FY 2021 to FY2022 due to completion of Captive Air Training Missile (CATM) testing.	-	2.442	1.203
Accomplishments/Planned Programs Subtotals	6.314	7.566	2.134

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C70302: Joint Air-to-Ground MSLS (JAGM)	199.295	196.548	152.177	-	152.177	-	-	-	-	-	-
• NAVY - 0605450M: Navy JAGM Missile RDT&E	13.427	12.713	0.357	-	0.357	-	-	-	-	-	-

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / <i>Joint Air-to-Ground Missile (JAGM)</i>	Project (Number/Name) JA6 / <i>Joint Air-To-Ground Missile (JAGM)</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• NAVY - 0206138M: <i>Navy JAGM Missile Procurement</i>	75.729	43.647	49.702	-	49.702	-	-	-	-	-	-
• AF - 0201109F: <i>Air Force Missile Procurement</i>	15.000	-	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The JAGM Production and Deployment (PD) Acquisition Strategy (AS) was approved at Milestone C on 15 June 2018. Three Low-Rate Initial Production (LRIP) contract options were awarded in August, September, and December 2018. Initial Operational Capability (IOC) of 96 missiles was achieved in March 2019. Initial Operational Testing was completed in May 2019. On 22 June 2020, the Army Acquisition Executive (AAE) was informed the JAGM program would not execute its Full Rate Production (FRP) decision. Integration challenges on the Navy AH-1Z Viper threshold platform delayed completion of Initial Operational Test and Evaluation (IOT&E) until Sep 2021, and the program does not meet the statutory requirement for FRP until IOT&E is complete. In response, the AAE extended Low Rate Initial Production (LRIP) and issued an Acquisition Decision Memorandum (ADM) authorizing additional LRIP quantities in support of Service and Foreign Military Sales (FMS) requirements until IOT&E is complete and a FRP decision is made. There are no impacts to FY22 funding or quantities, and the FY22 contract award will be made after the FRP decision in 2QFY22. Missile performance and missile tests to date have been successful. There are no significant software-related issues with the JAGM missile at this time. Integration issues are with the Navy AH-1Z Viper Attack Helicopter platform. There are no issues with JAGM specific resources or execution and the program will still provide the required capability on time and with the same planned production quantities. The Services maintain their commitments to the program and continue to address the Navy AH-1Z platform integration challenges.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605450A / Joint Air-to-Ground Missile (JAGM)				JA6 / Joint Air-To-Ground Missile (JAGM)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Eng/ Project Management	C/LH	Various : Performers	84.931	0.241	Nov 2019	-		0.180	Jul 2020	-		0.180	Continuing	Continuing	Continuing
Subtotal			84.931	0.241		-		0.180		-		0.180	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development Prime Contract	C/FFP	TD : Prime Contract	371.319	-		-		-		-		-	0.000	371.319	-
Rocket Motor Insensitive Munition (IM) Qualification	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	39.731	-		-		-		-		-	0.000	39.731	-
Electro-Mechanical Control Actuator System (EMCAS)	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	4.033	-		-		-		-		-	0.000	4.033	-
Integrated Warhead	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	2.982	-		-		-		-		-	0.000	2.982	-
EMD Long Lead Contract (Backends)	SS/FFP	Lockheed Martin : Orlando, FL	8.082	-		-		-		-		-	0.000	8.082	-
Development Engineering	C/LH	Various : Performers	21.648	-		-		-		-		-	0.000	21.648	-
EMD Prime Contract	C/FPIF	Lockheed Martin : Orlando, Florida	70.256	-		-		-		-		-	0.000	70.256	-
Apache Indefinite Delivery/ Indefinite Quantity (IDIQ) Contract	C/CPFF	Boeing Company : Mesa, AZ	19.100	-		-		-		-		-	0.000	19.100	-
JAGM Engineering Services	SS/CPFF	Lockheed Martin : Orlando, FL	-	3.602	Mar 2020	5.152	Mar 2021	1.125	Mar 2021	-		1.125	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			537.151	3.602		5.152		1.125		-		1.125	Continuing	Continuing	N/A

Remarks
 (C / FFP) - Competitive/Firm Fixed Price
 (C / CPFF) - Competitive/Cost-Plus Fixed Fee
 (C / LH) - Competitive/Labor Hour
 (SS / FFP) - Sole Source/Firm Fixed Price
 (C / FPIF) - Competitive/Fixed Price Incentive (Firm Target)

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Gov Agencies	C/LH	Various : Performers	130.888	2.471	Nov 2019	2.414	Nov 2020	0.829	Nov 2021	-		0.829	Continuing	Continuing	Continuing
Subtotal			130.888	2.471		2.414		0.829		-		0.829	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	752.970	6.314	7.566	2.134	-	2.134	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)	Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Full Rate Production (FRP) Decision									▲ 1																				
CATM Development																													
CATM Testing																													
Integration and Counter Measure/Threat Management																													

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / <i>Joint Air-to-Ground Missile (JAGM)</i>	Project (Number/Name) JA6 / <i>Joint Air-To-Ground Missile (JAGM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EMD	4	2015	3	2018
Army System & Integration Testing	4	2015	3	2018
Limited User Testing (LUT)	2	2018	2	2018
MS C Decision	3	2018	3	2018
IOC	2	2019	2	2019
IOT&E	3	2019	3	2019
Full Rate Production (FRP) Decision	2	2022	2	2022
CATM Development	1	2020	1	2022
CATM Testing	1	2021	3	2022
Integration and Counter Measure/Threat Management	1	2019	4	2025

Note

MS: Milestone
 IOC: Initial Operational Capability
 IOT&E: Initial Operational Test & Evaluation
 CATM: Captive Air Training Missile
 HW: Hardware
 SW: Software