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

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605450M / <i>Joint Air-to-ground Missile (JAGM)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	32.561	0.345	0.371	0.384	-	0.384	0.393	0.403	0.410	0.418	0.000	35.285
2211: <i>Joint Air-to-Ground Missile</i>	32.561	0.345	0.371	0.384	-	0.384	0.393	0.403	0.410	0.418	0.000	35.285

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P355

Note
 Prior to FY 2019, funding for Joint Air-to-Ground Missile (JAGM) was aligned to PE 0605450N.

A. Mission Description and Budget Item Justification

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that utilizes dual-mode seeker technology thus providing advanced line-of-sight and beyond-line-of-sight capabilities, including precision point and fire-and-forget seeker targeting and increased lethality against soft, hardened, moving, stationary, land, maritime threats. JAGM provides robust capability in adverse weather, day or night and in obscured/countermeasure environments. The JAGM Increment 1 system replaces aviation-launched, tube-launched, optically-tracked, wire-guided (TOW), and Helicopter Launched Fire-&Forget Missile (HELLFIRE) Systems. JAGM is an Army-led joint program that addresses rotary wing, fixed wing, and unmanned aerial vehicle requirements. Funding includes support of platform integration activities of the AH-1Z, the Department of Navy threshold platform for the JAGM integration. The JAGM system includes missiles, trainers, containers, support equipment and software modifications to the M-299 launcher. Future JAGM follow on efforts could include extending the weapon's range, developing a fixed wing variant, and developing potential follow on increments.

The JAGM program is part of the Navy's Integrated Fire Control (IFC) approach to address advanced threat capabilities in the Anti-Access/Area-Denial (A2AD) environment. IFC solutions enable individual system capabilities to be leveraged across an effects chain, placing the full spectrum of tactical capability in the hands of the warfighter. IFC solutions that push engagement distances beyond the launch platform's radar horizon and allow the United States Navy to operate in, and control, contested battle space in littoral waters and A2/AD environments are increasingly critical as more and more scenarios require compressed and coordinated fire control timelines.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under system development and demonstration because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.356	0.371	0.382	-	0.382
Current President's Budget	0.345	0.371	0.384	-	0.384
Total Adjustments	-0.011	0.000	0.002	-	0.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.011	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.002	-	0.002

Change Summary Explanation

Acquisition Milestones: Changes in Milestone dates were needed in order to address technical issues with the AH-1Z platform software.
 FRP Decision moved from 3Q FY 2022 to 4Q FY 2022
 FRP 1 award moved from 4Q FY 2022 to 2Q FY 2023
 FRP 2 award moved from 2Q FY 2023 to 3Q FY 2023
 FRP 3 award moved from 1Q FY 2024 to 3Q FY 2024
 FRP 4 award moved from 1Q FY 2025 to 3Q FY 2025
 FRP 5 award moved from 1Q FY 2026 to 3Q FY 2026
 FRP 6 award moved from 1Q FY 2027 to 3Q FY 2027
 LRIP V and FRP delivery periods revised to reflect updated FRP contract award dates.

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

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450M / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2211: Joint Air-to-Ground Missile	32.561	0.345	0.371	0.384	-	0.384	0.393	0.403	0.410	0.418	0.000	35.285
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P355

Note
Prior to FY 2019, funding for Joint Air-to-Ground Missile (JAGM) was aligned to PE 0605450N.

A. Mission Description and Budget Item Justification

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that utilizes dual-mode seeker technology thus providing advanced line-of-sight and beyond-line-of-sight capabilities, including precision point and fire-and-forget seeker targeting and increased lethality against soft, hardened, moving, stationary, land, maritime threats. JAGM provides robust capability in adverse weather, day or night and in obscured/countermeasure environments. The JAGM Increment 1 system will replace aviation-launched; tube-launched, optically-tracked, wire-guided (TOW), and Helicopter Launched Fire-&Forget Missile (HELLFIRE) Systems. Later increments of JAGM will be fixed wing compatible. JAGM is an Army-led joint program that addresses rotary wing, fixed wing and unmanned aerial vehicle requirements. The Department of Navy threshold platform is the AH-1Z. The JAGM system includes missile, trainers, containers, support equipment and software modifications to the M-299 launcher.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: JAGM Engineering and Manufacturing Development (EMD) Phase	0.345	0.371	0.384	0.000	0.384
Articles:	-	-	-	-	-
FY 2023 Plans: FY 2023 funding will cover continued software correction of deficiencies and associated airworthiness engineering/logistics support and any required test validation including integration testing, operation testing and cyber testing.					
FY 2024 Base Plans: FY 2024 funding will cover continued software correction of deficiencies and associated airworthiness engineering/logistics support and any required test validation including integration testing, operation testing and cyber testing. Commence efforts to assess feasibility of follow on JAGM Increment 1 weapon system and JAGM Increment 1 upgrades.					
FY 2024 OCO Plans:					

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450M / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase of \$0.013M from FY 2023 to FY 2024 is due to starting JAGM Increment 1 feasibility efforts.					
Accomplishments/Planned Programs Subtotals	0.345	0.371	0.384	0.000	0.384

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDT&E ARMY, 0605450A: JAGM	2.142	2.292	3.014	-	3.014	3.024	0.000	0.000	0.000	Continuing	Continuing
• MPA, ARMY, C70302: JAGM	152.177	216.030	303.409	-	303.409	162.490	191.751	175.659	181.500	4,745.542	7,094.107
• WPN/2248: Joint Air Ground Missile (JAGM)	46.702	78.395	79.292	-	79.292	81.317	83.729	84.789	88.416	832.138	1,544.427

Remarks

D. Acquisition Strategy
The Joint Air-to-Ground Missile (JAGM) system is an ACAT-1C Joint Army/Navy Major Defense Acquisition Program (MDAP) with the Army designated as lead service. Milestone B was achieved in July 2015 with Milestone C achieved June 2018. The Engineering, Manufacturing and Development contract was a full and open competition and was awarded July 2015. The vendor, Lockheed Martin, is responsible for the production of a technically mature and fully producible JAGM Guidance Section (GS) as well as the integration of the GS with the current HELLFIRE-R missile warhead and motor section for Increment 1 capability. The Army is responsible for the development and production of the JAGM missile and integration on the AH-64 Apache. The Navy is responsible for integration of the JAGM on the United States Marine Corps AH-1Z which achieved an Initial Operational Capability (IOC) in March 2022.

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

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450M / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	NAWCWD : China Lake, CA	2.301	0.040	Nov 2021	0.042	Nov 2022	0.046	Nov 2023	-		0.046	0.120	2.549	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	1.931	0.065	Nov 2021	0.067	Nov 2022	0.072	Nov 2023	-		0.072	0.130	2.265	-
Contractor Integration & Test	C/FFP	Lockheed Martin : Orlando, FL	1.774	0.240	Mar 2022	0.000		0.000		-		0.000	0.000	2.014	2.014
Contractor Integration & Test	Various	Various : Various	0.000	0.000		0.157	Mar 2023	0.115	Mar 2024	-		0.115	1.273	1.545	-
Trade Studies	Various	Various : Various	0.000	0.000		0.000		0.047	Mar 2024	-		0.047	0.089	0.136	-
Prior year Product Development costs no longer in FYDP	Various	Various : Various	3.938	0.000		0.000		0.000		-		0.000	0.000	3.938	-
Subtotal			9.944	0.345		0.266		0.280		-		0.280	1.612	12.447	N/A

Remarks
Aircraft Integration and Integration & Test included in Prior year Production Development costs no longer funded in the FYDP.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	WR	NAWCWD : China Lake, CA	0.642	0.000		0.030	Nov 2022	0.033	Nov 2023	-		0.033	0.000	0.705	-
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.196	0.000		0.030	Nov 2022	0.031	Nov 2023	-		0.031	0.000	0.257	-
Prior year Support cost no longer in FYDP	Various	Various : Various	4.070	0.000		0.000		0.000		-		0.000	0.000	4.070	-
Subtotal			4.908	0.000		0.060		0.064		-		0.064	0.000	5.032	N/A

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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test & Evaluation (OT&E)	Various	Various : Various	1.314	0.000		0.030	Nov 2022	0.035	Nov 2023	-		0.035	0.000	1.379	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	13.467	0.000		0.000		0.000		-		0.000	0.000	13.467	-
Subtotal			14.781	0.000		0.030		0.035		-		0.035	0.000	14.846	N/A

Remarks
Test & Evaluation at NAWCAD, NAWCWD and USMC: MCAS Yuma included in Prior year Test & Evaluation costs no longer funded in the FYDP.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contr Eng Supt - ETS (NONFFRDC)	Various	Various : Various	2.003	0.000		0.000		0.000		-		0.000	0.000	2.003	-
Management Services	Various	NAWCAD : Patuxent River, MD	0.708	0.000		0.015	Nov 2022	0.000		-		0.000	0.000	0.723	-
Travel	Various	NAWCAD : Patuxent River, MD	0.217	0.000		0.000		0.005	Nov 2023	-		0.005	0.000	0.222	-
Subtotal			2.928	0.000		0.015		0.005		-		0.005	0.000	2.948	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.561	0.345	0.371	0.384	-	0.384	1.612	35.273	N/A

Remarks
1) Program acquisition milestones (minus unique Initial Operating Capability) and production milestones are joint program milestones for both Army and Navy.

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

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450M / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile
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		FY22				FY23				FY24				FY25				FY26				FY27				FY28			
		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
Milestones		INCR 1 JAGM PRODUCTION & DEPLOYMENT PHASE																											
		FRP Decision ▼		FRP-2 ▼ FRP-1 ▼				FRP-3 ▼				FRP-4 ▼				FRP-5 ▼				FRP-6 ▼				FRP-7 ▼					
		LRIP IIIB				LRIP IV Deliveries				LRIP V Deliveries				FRP-1 Deliveries				FRP-2 Deliveries				FRP-3 Deliveries				FRP-4 Del			
Current AH-1Z Integration Schedule	AH-1Z	<div style="display: flex; flex-direction: column; align-items: flex-start; padding: 5px;"> <div style="margin-bottom: 10px;">Navy IOC ★</div> <div style="margin-bottom: 10px;">IOT&E</div> <div style="margin-bottom: 10px;">OTRR</div> <div style="margin-bottom: 10px;">Post Flight Analysis</div> <div style="margin-bottom: 10px;">Range Spt</div> <div style="background-color: #003366; color: yellow; padding: 5px; font-weight: bold;">Correction & Integration of Software Deficiencies</div> </div>																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450M / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JAGM				
IOC	2	2022	2	2022
FRP Decision	4	2022	4	2022
Test and Evaluation: Operational Testing: IOT&E	1	2022	2	2022
Production Milestones: Contract Awards: FRP Decision (WPN)	4	2022	4	2022
Production Milestones: Contract Awards: FRP 1 (WPN)	2	2023	2	2023
Production Milestones: Contract Awards: FRP 2 (WPN)	3	2023	3	2023
Production Milestones: Contract Awards: FRP 3 (WPN)	3	2024	3	2024
Production Milestones: Contract Awards: FRP 4(WPN)	3	2025	3	2025
Production Milestones: Contract Awards: FRP 5 (WPN)	3	2026	3	2026
Production Milestones: Contract Awards: FRP 6 (WPN)	3	2027	3	2027
Production Milestones: Contract Awards: FRP 7 (WPN)	3	2028	3	2028
Production Milestones: Deliveries: LRIP 3B (WPN)	2	2022	2	2023
Production Milestones: Deliveries: LRIP 4 (WPN)	2	2023	2	2024
Production Milestones: Deliveries: LRIP 5 (WPN)	3	2024	1	2025
Production Milestones: Deliveries: FRP 1 (WPN)	2	2025	4	2025
Production Milestones: Deliveries: FRP 2 (WPN)	1	2026	4	2026
Production Milestones: Deliveries: FRP 3 (WPN)	1	2027	1	2028
Production Milestones: Deliveries: FRP 4 (WPN)	1	2028	4	2028