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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	219.280	14.457	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	233.737
2211: Joint Air-to-Ground Missile	219.280	14.457	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	233.737
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): P355												
Note Starting in FY 2019, funding for Joint Air-to-Ground Missile (JAGM) was realigned to PE 0605450M.												
A. Mission Description and Budget Item Justification The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that will utilize dual-mode seeker technology 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 will additionally provide 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. 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. 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	15.473	0.000	0.000	-	0.000
Current President's Budget	14.457	0.000	0.000	-	0.000
Total Adjustments	-1.016	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.416	0.000			
• Congressional Directed Reductions Adjustments	-0.600	-	-	-	-
Change Summary Explanation					
Starting in FY 2019, funding for Joint Air-to-Ground Missile (JAGM) was realigned to PE 0605450M.					

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Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-																																												
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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019	
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)				Project (Number/Name) 2211 / Joint Air-to-Ground Missile			
C. Other Program Funding Summary (\$ in Millions)											
			FY 2020	FY 2020	FY 2020					Cost To	
Line Item	FY 2018	FY 2019	Base	OCO	Total	FY 2021	FY 2022	FY 2023	FY 2024	Complete	Total Cost
• RDT&E ARMY, 0605450A: JAGM	28.539	11.773	9.500	-	9.500	8.900	2.163	2.314	3.000	Continuing	Continuing
• MPA, ARMY, C70302: JAGM	178.432	276.462	233.353	-	233.353	213.608	220.900	213.611	208.833	0.000	1,671.948
• WPN, NAVY, 2248: JAGM	3.789	24.109	0.000	90.966	90.966	49.431	50.418	76.246	77.770	1,204.238	1,598.889
• RDT&E NAVY, 0605450M: JAGM	0.000	6.759	18.393	-	18.393	12.713	0.220	0.224	0.228	0.000	38.537
Remarks											
D. Acquisition Strategy											
<p>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 with an Initial Operational Capability (IOC) in FY 2020.</p>											
E. Performance Metrics											
Milestone C in FY 2018; IOC in FY 2020											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy **Date:** March 2019

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Systems Engineering	WR	NAWCWD : China Lake, CA	52.876	1.014	Nov 2017	0.000		0.000		-		0.000	0.000	53.890	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	2.139	0.459	Nov 2017	0.000		0.000		-		0.000	0.000	2.598	-
Aircraft Integration	WR	NAWCAD : Patuxent River, MD	10.337	0.563	Nov 2017	0.000		0.000		-		0.000	0.000	10.900	-
Aircraft Integration (AH-1Z)	Various	NAWCWD : China Lake, CA	6.818	2.040	Nov 2017	0.000		0.000		-		0.000	0.000	8.858	-
Contractor Aircraft Integration (AH-1Z)	Various	Northrup Grumman : Woodlawn Hills, CA	14.030	3.436	Sep 2018	0.000		0.000		-		0.000	0.000	17.466	-
Integration & Test	Various	JAMS : Huntsville, AL	29.510	1.576	Jan 2018	0.000		0.000		-		0.000	0.000	31.086	-
Prior year cost Prod Dev no longer funded in the FYDP	Various	Various : Various	24.503	0.000		0.000		0.000		-		0.000	0.000	24.503	-
Subtotal			140.213	9.088		0.000		0.000		-		0.000	0.000	149.301	N/A

Remarks

Contractor Aircraft Integration (AH-1Z) - Funding in this line includes software support associated with the integration of JAGM on the AH-1Z.
 Integration & Test - Funding in this line includes integration & test support, modeling & simulation and telemetry kits.
 Contractor Integration & Test - Funding in this line includes hardware and support associated with the Engineering and Manufacturing Development (EMD) contract.

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Integrated Logistics Support	WR	NAWCWD : China Lake, CA	1.131	0.163	Nov 2017	0.000		0.000		-		0.000	0.000	1.294	-
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.155	0.076	Nov 2017	0.000		0.000		-		0.000	0.000	0.231	-
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	12.447	0.000		0.000		0.000		-		0.000	0.000	12.447	-

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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Subtotal			13.733	0.239		0.000		0.000		-		0.000	0.000	13.972	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Test & Evaluation	Various	NAWCAD : Patuxent River, MD	4.541	0.451	Nov 2017	0.000		0.000		-		0.000	0.000	4.992	-
Test & Evaluation	Various	NAWCWD : China Lake, CA	0.000	1.627	Nov 2017	0.000		0.000		-		0.000	0.000	1.627	-
Test & Evaluation	Various	USMC : MCAS Yuma, AZ	0.000	1.121	Mar 2018	0.000		0.000		-		0.000	0.000	1.121	-
Test & Evaluation	Various	Various : Various	0.210	0.639	Nov 2017	0.000		0.000		-		0.000	0.000	0.849	-
Prior year T&E cost no longer funded in the FYDP	Various	Various : Various	41.328	0.000		0.000		0.000		-		0.000	0.000	41.328	-
Subtotal			46.079	3.838		0.000		0.000		-		0.000	0.000	49.917	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Contr Eng Supt - ETS (NONFFRDC)	Various	Various : Various	3.486	0.936	Feb 2018	0.000		0.000		-		0.000	0.000	4.422	-
Management Services	Various	NAWCAD : Patuxent River, MD	15.173	0.296	Nov 2017	0.000		0.000		-		0.000	0.000	15.469	-
Travel	Various	NAWCAD : Patuxent River, MD	0.596	0.060	Oct 2017	0.000		0.000		-		0.000	0.000	0.656	-
Prior year Mngt Svcs cost no longer funded in the FYDP	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			19.255	1.292		0.000		0.000		-		0.000	0.000	20.547	N/A

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			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			219.280	14.457		0.000		0.000		-		0.000	0.000	233.737	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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PE 0605450N: *Joint Air-to-ground Missile (JAGM)*
Navy

R-1 Line #164

R-1 Program Element (Number/Name)
PE 0605450N / *Joint Air-to-ground Missile (JAGM)*

2211 / Joint Air-to-Ground Missile

(JAGM)

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2020DON - 0605450N - 2211

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450N / <i>Joint Air-to-ground Missile (JAGM)</i>	Project (Number/Name) 2211 / <i>Joint Air-to-Ground Missile</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JAGM				
Acquisition Milestones: Milestone C	3	2018	3	2018
Test and Evaluation: AH-1Z Integration: AH-1Z Integration	1	2018	1	2018
Test and Evaluation: Software Development Testing/Integration Testing: DT Assist	1	2018	2	2018
Test and Evaluation: Software Development Testing/Integration Testing: DT/IT Software 8.2.2 Development testing	3	2018	4	2018
Test and Evaluation: Software Development Testing/Integration Testing: DT/IT Software 8.2.3 Development testing	1	2018	4	2018
Test and Evaluation: Software Development Testing/Integration Testing: Modeling & Simulation	1	2018	4	2018
Test and Evaluation: Software Integration Lab Testing: SIL Testing	1	2018	4	2018
Production Milestones: Contract Awards: LRIP 1 (Army Only)	4	2018	4	2018
Production Milestones: Contract Awards: LRIP 2 (WPN)	4	2018	4	2018
Production Milestones: Deliveries: DT/IT Test Asset	1	2018	3	2018
Production Milestones: Deliveries: OT Test Asset	3	2018	4	2018