

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2017 Navy **Date:** February 2016

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>					<b>R-1 Program Element (Number/Name)</b> PE 0605450N / <i>Joint Air-to-ground Missile (JAGM)</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	169.702	6.104	25.898	17.880	-	17.880	15.834	7.004	0.161	0.187	Continuing	Continuing
2211: <i>Joint Air-to-Ground Missile</i>	169.702	6.104	25.898	17.880	-	17.880	15.834	7.004	0.161	0.187	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that will utilize multi-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 and hardened moving and stationary land and maritime targets. JAGM will additionally provide robust capability in adverse weather, day or night, and in obscured/countermeasure environments. The JAGM system will replace aviation-launched, Tube-launched, Optically-tracked, Wire-guided, and Hellfire. JAGM is an Army-led joint program that addresses rotary wing and unmanned aerial vehicle requirements. The Department of Navy threshold platform is the AH-1Z. The JAGM system includes missile, trainers, container, 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 allows 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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
Previous President's Budget	6.300	25.898	19.798	-	19.798
Current President's Budget	6.104	25.898	17.880	-	17.880
Total Adjustments	-0.196	0.000	-1.918	-	-1.918
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.196	0.000			
• Program Adjustments	0.000	0.000	-0.484	-	-0.484

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016			
Appropriation/Budget Activity	R-1 Program Element (Number/Name)				
1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)	PE 0605450N / Joint Air-to-ground Missile (JAGM)				
• Rate/Misc Adjustments	0.000	0.000	-1.434	-	-1.434

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy										<b>Date:</b> February 2016		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605450N / Joint Air-to-ground Missile (JAGM)				<b>Project (Number/Name)</b> 2211 / Joint Air-to-Ground Missile			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2211: Joint Air-to-Ground Missile	169.702	6.104	25.898	17.880	-	17.880	15.834	7.004	0.161	0.187	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that will utilize multi-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 and hardened moving and stationary land and maritime targets. JAGM will additionally provide robust capability in adverse weather, day or night, and in obscured/countermeasure environments. The JAGM system will replace aviation-launched, Tube-launched, Optically-tracked, Wire-guided, and Hellfire. JAGM is an Army-led joint program that addresses rotary wing and unmanned aerial vehicle requirements. The Department of Navy threshold platform is the AH-1Z. The JAGM system includes missile, trainers, container, support equipment and software modifications to the M-299 launcher.

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

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
<b>Title:</b> JAGM Engineering and Manufacturing Development (EMD) Phase	6.104	25.898	17.880	0.000	17.880
<b>Articles:</b>	44	8	-	-	-
<b>FY 2015 Accomplishments:</b>					
FY15 accomplishments included initial platform integration efforts on the United States Marine Corps AH-1Z, program management, engineering, test, evaluation and budget planning for Engineering, Manufacturing and Development (EMD) phase efforts, completion of Milestone B statutory and regulatory requirements, EMD contract award to include acquisition of test hardware and integration support and buildup of test articles required for execution of EMD.					
<b>FY 2016 Plans:</b>					
FY16 funding supports AH-1Z software development, test and integration, platform airworthiness analysis/testing, test planning/execution, procurement of test and integration hardware, acquisition and buildup of test articles, future technology insertion, and joint cost and schedule planning for EMD, Milestone C and Low Rate Initial Production (LRIP).					
<b>FY 2017 Base Plans:</b>					
FY17 plans include continued execution of EMD phase and AH-1Z integration activities, including continued airworthiness certification, software development, Developmental Testing (DT), and a planned DT assist period					

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2017 Navy **Date:** February 2016

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

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
to support Milestone C. AH-1Z software development and test efforts will continue in support of fleet software release planned for the FY19 Initial Operational Capability (IOC).					
<b><i>FY 2017 OCO Plans:</i></b> N/A					
<b>Accomplishments/Planned Programs Subtotals</b>	6.104	25.898	17.880	0.000	17.880

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDT&E ARMY, 0605450A: JAGM	83.800	88.900	43.600	-	43.600	8.500	5.900	0.000	0.000	Continuing	Continuing
• MPA, ARMY, C70302: JAGM	0.000	27.700	101.900	-	101.900	190.400	260.000	228.600	308.500	3,606.700	4,723.800
• WPN, NAVY, 2248: JAGM	0.000	0.000	26.200	-	26.200	26.200	24.300	24.300	49.786	1,353.800	1,504.586

**Remarks**

**D. Acquisition Strategy**  
 The Joint Air-to-Ground Missile (JAGM) system is an ACAT-1D Joint Army/Navy Major Defense Acquisition Program (MDAP) with the Army designated as lead service. Milestone B was achieved in June 2015 with Milestone C planned for 4Q FY17. 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 currently Army-fielded HELLFIRE-R missile bus for the 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 AH-1Z. Initial Operational Capability (IOC) for the United States Marine Corps AH-1Z is in FY19.

**E. Performance Metrics**  
 Milestone C in FY17; IOC in FY19

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy** **Date:** February 2016

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

<b>Product Development (\$ in Millions)</b>				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	46.781	0.150	Jul 2015	1.870	Nov 2015	1.907	Nov 2016	-		1.907	2.700	53.408	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.485	0.120	Jul 2015	0.343	Nov 2015	0.637	Nov 2016	-		0.637	1.299	2.884	-
Aircraft Integration	WR	NAWCAD : Patuxent River, MD	8.798	0.300	Jul 2015	0.581	Nov 2015	1.280	Nov 2016	-		1.280	0.524	11.483	-
Aircraft Integration (AH-1Z)	Various	NAWCWD : China Lake, CA	3.018	0.400	Aug 2015	4.300	Nov 2015	5.926	Nov 2016	-		5.926	5.679	19.323	-
Integration & Test	WR	JAMS : Huntsville, AL	25.737	0.064	Jun 2015	4.600	Jan 2016	1.030	Jan 2017	-		1.030	1.716	33.147	-
Contractor Integration & Test	C/FPIF	Lockheed Martin : Orlando, FL	0.000	4.300	Aug 2015	8.600	Feb 2016	0.500	Feb 2017	-		0.500	0.000	13.400	-
Prior year cost Prod Dev no longer funded in the FYDP	Various	Various : Various	11.555	0.000		0.000		0.000		-		0.000	0.000	11.555	-
<b>Subtotal</b>			96.374	5.334		20.294		11.280		-		11.280	11.918	145.200	-

**Remarks**  
 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.

<b>Support (\$ in Millions)</b>				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	0.000	0.030	Aug 2015	0.107	Nov 2015	0.160	Nov 2016	-		0.160	0.278	0.575	-
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.050	Nov 2015	0.075	Nov 2016	-		0.075	0.153	0.278	-
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	-
<b>Subtotal</b>			12.447	0.030		0.157		0.235		-		0.235	0.431	13.300	-

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0605450N / Joint Air-to-ground Missile (JAGM)				2211 / Joint Air-to-Ground Missile							
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	3.786	0.000		1.250	Nov 2015	2.465	Nov 2016	-		2.465	1.958	9.459	-
Test & Evaluation	Various	NAWCWD : China Lake, CA	0.000	0.000		0.953	Nov 2015	1.045	Nov 2016	-		1.045	0.127	2.125	-
Test & Evaluation	Various	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.480	Nov 2016	-		0.480	2.547	3.027	-
Test & Evaluation	Various	MCAS : Yuma, AZ	0.000	0.000		0.000		0.406	Nov 2016	-		0.406	0.936	1.342	-
Test & Evaluation	Various	USAF : Eglin AFB, FL	0.000	0.000		2.000	Feb 2016	0.701	Nov 2016	-		0.701	0.296	2.997	-
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	-
<b>Subtotal</b>			45.114	0.000		4.203		5.097		-		5.097	5.864	60.278	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	1.332	0.594	Apr 2015	0.900	Feb 2016	0.918	Feb 2017	-		0.918	0.808	4.552	-
Management Services	Various	NAWCAD : Patuxent River, MD	14.020	0.099	Jun 2015	0.284	Nov 2015	0.290	Nov 2016	-		0.290	0.592	15.285	-
Travel	Various	NAWCAD : Patuxent River, MD	0.415	0.047	Nov 2014	0.060	Nov 2015	0.060	Nov 2016	-		0.060	Continuing	Continuing	Continuing
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	-
<b>Subtotal</b>			15.767	0.740		1.244		1.268		-		1.268	-	-	-
<b>Project Cost Totals</b>			169.702	6.104		25.898		17.880		-		17.880	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2017 Navy</b>							<b>Date:</b> February 2016			
<b>Appropriation/Budget Activity</b> 1319 / 5			<b>R-1 Program Element (Number/Name)</b> PE 0605450N / <i>Joint Air-to-ground Missile (JAGM)</i>			<b>Project (Number/Name)</b> 2211 / <i>Joint Air-to-Ground Missile</i>				
	<b>Prior Years</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	

**Remarks**  
 1) Program acquisition milestones (minus unique Initial Operating Capability) and production milestones are joint program milestones for both Army and Navy.  
 2) FY15 updated for actuals. FY16 and FY17 updated based on FY15 actuals.



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2017 Navy		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605450N / Joint Air-to-ground Missile (JAGM)	<b>Project (Number/Name)</b> 2211 / Joint Air-to-Ground Missile

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>JAGM</b>				
Acquisition Milestones: Milestone B	3	2015	3	2015
Acquisition Milestones: Milestone C	4	2017	4	2017
Acquisition Milestones: IOC	4	2019	4	2019
Acquisition Milestones: FRP Decision	3	2019	3	2019
Reviews: System Critical Design Review	1	2016	1	2016
Test and Evaluation: AH1-Z Integration: AH1-Z Integration	1	2015	3	2018
Test and Evaluation: Software Development Testing/Integration Testing: DT Assist	2	2017	3	2017
Test and Evaluation: Software Development Testing/Integration Testing: DT/IT	1	2018	4	2018
Test and Evaluation: Operational Testing: OT	4	2018	1	2019
Test and Evaluation: Operational Testing: OT Reporting	1	2019	2	2019
Test and Evaluation: Software Integration Lab Testing: SIL Testing	3	2015	4	2017
Production Milestones: Contract Awards: DT/IT Test Asset	3	2015	3	2015
Production Milestones: Contract Awards: OT Test Asset	2	2016	2	2016
Production Milestones: Contract Awards: LRIP 1 (WPN)	4	2017	4	2017
Production Milestones: Contract Awards: LRIP 2 (WPN)	3	2018	3	2018
Production Milestones: Contract Awards: FRP (WPN)	3	2019	3	2019
Production Milestones: Deliveries: DT/IT Test Asset	3	2016	3	2017
Production Milestones: Deliveries: OT Test Asset	2	2018	3	2018
Production Milestones: Deliveries: LRIP 1 (WPN)	4	2018	3	2019
Production Milestones: Deliveries: LRIP 2 (WPN)	4	2019	3	2020

**UNCLASSIFIED**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**