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

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)					<b>R-1 Program Element (Number/Name)</b> PE 0605450A / Joint Air-to-Ground Missile (JAGM)							
<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>
Total Program Element	-	80.585	83.054	42.972	-	42.972	8.526	5.900	0.000	0.000	0.000	221.037
JAG6: Joint Air-To-Ground Missile (JAGM)	-	80.585	83.054	42.972	-	42.972	8.526	5.900	0.000	0.000	0.000	221.037

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

The Joint Air-to-Ground Missile (JAGM) program is an Army led Major Defense Acquisition Program (MDAP) with joint interest with the 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>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	83.799	88.866	41.286	-	41.286
Current President's Budget	80.585	83.054	42.972	-	42.972
Total Adjustments	-3.214	-5.812	1.686	-	1.686
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.812			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.214	-			
• Adjustments to Budget Years	-	-	1.686	-	1.686

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<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605450A / Joint Air-to-Ground Missile (JAGM)				<b>Project (Number/Name)</b> JA6 / Joint Air-To-Ground Missile (JAGM)			
<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>
JA6: Joint Air-To-Ground Missile (JAGM)	-	80.585	83.054	42.972	-	42.972	8.526	5.900	0.000	0.000	0.000	221.037
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The Joint Air-to-Ground Missile (JAGM) program is an Army led Major Defense Acquisition Program (MDAP) with joint interest with the U.S. Marine Corps (USMC) and U.S. Navy. The JAGM mission is to develop 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)**

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<p><b>Title:</b> Milestone (MS) B Preparation</p> <p><b>Description:</b> The JAGM Product Office will prepare documentation for MS B decision.</p> <p><b>FY 2015 Accomplishments:</b> The JAGM Product Office completed documentation for MS B and an Engineering and Manufacturing Development (EMD) Request for Proposal (RFP). Additionally the office conducted a Source Selection Evaluation Board (SSEB) in response to the RFP. Program completed a successful MS B Defense Acquisition Board (DAB) and awarded an EMD contract in the fourth quarter FY 2015.</p>	8.238	-	-
<p><b>Title:</b> Guidance Section (GS) Critical Design Review (CDR), Component Qualification Testing (CQT) and System Qualification Testing (SQT)</p> <p><b>Description:</b> The JAGM Product Office will integrate the JAGM GS to the HELLFIRE missile backend and perform SQT.</p> <p><b>FY 2015 Accomplishments:</b> The JAGM Product Office and prime contractor continued SQT, which included Environmental and Electromagnetic Environmental Effects (E3) and Tower/Captive Flight Testing. The Government conducted ground launched flight tests to support risk reduction efforts prior to EMD.</p>	8.264	-	-
<p><b>Title:</b> Engineering and Manufacturing Development (EMD) Contract</p> <p><b>Description:</b> The JAGM prime contractor will conduct qualification of the production line and deliver missiles to support both Developmental and Operational Testing. The prime contractor will support government led activities to qualify the JAGM on the AH-64 Apache.</p>	47.552	29.060	7.881

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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605450A / Joint Air-to-Ground Missile (JAGM)	<b>Project (Number/Name)</b> JA6 / Joint Air-To-Ground Missile (JAGM)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<p><b><i>FY 2015 Accomplishments:</i></b> The JAGM prime contractor worked to establish subcontracts, to procure hardware and to initiate JAGM missile production. The prime contractor supported airworthiness qualification of the JAGM missile on the AH-64 Apache. EMD long lead items (HELLFIRE Back end) were procured to support EMD test events.</p> <p><b><i>FY 2016 Plans:</i></b> The JAGM prime contractor continues to establish subcontracts, procure hardware and continue production of the JAGM missile on a pilot production line. Prime contractor supports government led All Up Round (AUR) CDR, System Test Readiness Review (TRR) and Production Qualification Test (PQT) and integration on AH-64 Apache.</p> <p><b><i>FY 2017 Plans:</i></b> The JAGM prime contractor develops, integrates and delivers tactical AURs for integrated test and evaluation on the Apache platform and supports Initial Operational Test and Evaluation (IOT&amp;E). The prime contractor will also deliver hardware for safety tests and Explosive Ordnance Disposal (EOD) classroom system trainers.</p>				
<p><b><i>Title:</i></b> System Critical Design Review (CDR)</p> <p><b><i>Description:</i></b> System CDR occurs in the EMD phase. Assess the JAGM system final design as captured in product specifications. Ensures that each item in the product baseline has been captured in the detailed design documentation.</p> <p><b><i>FY 2015 Accomplishments:</i></b> The JAGM Product Office prepared for JAGM System CDR.</p> <p><b><i>FY 2016 Plans:</i></b> The JAGM Product Office will complete System CDR by verifying prime contractor design compliance to all performance requirements including environmental conditions, missile and platform interfaces, reliability and cyber security.</p>		3.516	5.522	-
<p><b><i>Title:</i></b> Engineering and Manufacturing Development (EMD) Aircraft Qualification and Missile Testing</p> <p><b><i>Description:</i></b> The Government will conduct system developmental testing and aircraft qualification testing.</p> <p><b><i>FY 2015 Accomplishments:</i></b> The JAGM Product Office conducted warhead lethality testing, integrated flight simulations, captive carry testing and missile flight testing. The JAGM Product Office, platform product office and platform prime contractor conducted aircraft qualification testing. Test data and interface requirements will support initial airworthiness qualification required for testing on the AH-64 Apache.</p> <p><b><i>FY 2016 Plans:</i></b></p>		13.015	32.475	24.229

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

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<p>The JAGM Product Office and Other Government Agencies (OGAs) will conduct warhead tests for lethality characterization and Live Fire Test and Evaluation (T&amp;E) requirements; Seeker performance through captive flight tests including countermeasures and hardware in the loop; Production Qualification Tests for Environmental and Electromagnetic Environmental Effects (E3); Ground launched missile flight tests; Safety of flight tests and platform integration laboratory testing for airworthiness and interface verification; System TRR; Apache flight tests with missile launches against threat targets including Live Fire T&amp;E. The data will support the Full Material Release process.</p> <p><b>FY 2017 Plans:</b> The JAGM Product Office and OGAs will continue developmental T&amp;E, Integrated T&amp;E and Operational T&amp;E to include warhead tests for Live Fire T&amp;E requirements; Initial Operational Test and Evaluation (IOT&amp;E); Aircraft and missile regression flight tests to demonstrate compatibility is maintained with legacy systems; and a Logistics Demonstration. The data will support System Evaluation, Milestone C and Full Material Release.</p>			
<p><b>Title:</b> Systems Engineering and Milestone (MS) C Preparation</p> <p><b>Description:</b> The JAGM Product Office will complete all documentation, conduct evaluations, reviews and analyses to support a FY 2017 MS C decision, Production Contract Award and contract options.</p> <p><b>FY 2016 Plans:</b> The JAGM Product Office will develop all documentation, conduct reviews and perform analyses to support a FY 2017 MS C decision, contract options and conduct systems engineering to support other platform integration.</p> <p><b>FY 2017 Plans:</b> The JAGM Product Office takes delivery of missile and system trainers while conducting government testing and systems engineering (Lethality, Safety, Qualification, Airworthiness, Logistics Demonstration, IOT&amp;E and Full Material Release). JAGM Product Office will continue to coordinate and staff all acquisition documents in support of a fourth quarter FY 2017 MS C decision per DoD 5000.02 and AR 70-1 guidance.</p>	-	15.997	10.862
<b>Accomplishments/Planned Programs Subtotals</b>	80.585	83.054	42.972

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BLIN 005 (C70302A): Joint Air-To-Ground Missile (JAGM) Procurement	-	27.738	101.851	-	101.851	190.432	259.118	227.606	307.370	Continuing	Continuing

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army	<b>Date:</b> February 2016
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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605450A / <i>Joint Air-to-Ground Missile (JAGM)</i>	<b>Project (Number/Name)</b> JA6 / <i>Joint Air-To-Ground Missile (JAGM)</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0605450N: <i>Navy JAGM Missile RDT&amp;E</i>	6.104	25.898	17.880	-	17.880	15.838	7.004	0.161	0.187	Continuing	Continuing
• 0206138M: <i>Navy JAGM Missile Procurement</i>	-	-	26.200	-	26.200	26.200	24.300	24.300	49.786	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The JAGM EMD acquisition approach outlines the plan to qualify the All Up Round (AUR), qualify the production line, qualify JAGM on the U.S. Army AH-64 Apache, and complete operational testing. Advanced Procurement of long lead items (HELLFIRE Romeo back ends and Guidance Section subsystems) occurs in FY 2016 - FY 2018. This long lead procurement is needed to facilitate Low Rate Initial Production (LRIP) I and II and Full Rate Production (FRP), which is necessary to achieve Initial Operational Capability (IOC). The JAGM Product Office and Army Contracting Command (ACC) - Redstone Arsenal conducted a full and open competition for the JAGM EMD phase and awarded a Fixed Price Incentive Fee (FPIF) contract in FY 2015.

**E. Performance Metrics**

N/A

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

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605450A / Joint Air-to-Ground Missile (JAGM)	<b>Project (Number/Name)</b> JA6 / Joint Air-To-Ground Missile (JAGM)
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<b>Management Services (\$ 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			
System Eng/ Project Management	C/LH	Various : Performers	40.374	11.081	Oct 2014	15.997	Oct 2015	10.862	Oct 2016	-		10.862	0	78.314	0
<b>Subtotal</b>			40.374	11.081		15.997		10.862		-		10.862	0.000	78.314	0.000

<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			
Technology Development Prime Contract	C/FFP	TD : Prime Contract	371.319	-		-		-		-		-	0	371.319	0
Rocket Motor Insensitive Munition (IM) Qualification	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	30.534	1.900	Jan 2015	-		-		-		-	0	32.434	0
Electro-Mechanical Control Actuator System (EMCAS)	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	4.033	-		-		-		-		-	0	4.033	0
Integrated Warhead	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	2.982	-		-		-		-		-	0	2.982	0
EMD Long Lead Contract (Backends)	SS/FFP	Lockheed Martin : Orlando, FL	0.430	7.652	Jul 2015	-		-		-		-	0	8.082	0
Development Engineering	C/LH	Various : Performers	21.648	-		-		-		-		-	0	21.648	0
EMD Prime Contract	C/FPIF	Lockheed Martin : Orlando, Florida	0.000	38.000	Apr 2015	29.060	Apr 2016	7.881	Apr 2017	-		7.881	0	74.941	0
<b>Subtotal</b>			430.946	47.552		29.060		7.881		-		7.881	0.000	515.439	0.000

**Remarks**  
(C / FFP) - Competitive / Firm Fixed Price  
(C / CPFF) - Competitive / Cost-Plus Fixed Fee  
(C / LH) - Competitive / Labor Hour

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2017 Army</b>												<b>Date:</b> February 2016			
<b>Appropriation/Budget Activity</b> 2040 / 5				<b>R-1 Program Element (Number/Name)</b> PE 0605450A / Joint Air-to-Ground Missile (JAGM)				<b>Project (Number/Name)</b> JA6 / Joint Air-To-Ground Missile (JAGM)							
<b>Product Development (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<small>(SS / FFP) - Sole Source / Firm Fixed Price (C / FPIF) - Competitive / Fixed Price Incentive (Firm Target)</small>															
<b>Test and Evaluation (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Other Gov Agencies	C/LH	Various : Performers	24.326	21.952	Nov 2015	37.997	Nov 2016	24.229	Nov 2017	-		24.229	0	108.504	0
<b>Subtotal</b>			24.326	21.952		37.997		24.229		-		24.229	0.000	108.504	0.000
<b>Project Cost Totals</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>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			495.646	80.585		83.054		42.972		-		42.972	0.000	702.257	0.000
<b>Remarks</b>															

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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605450A / Joint Air-to-Ground Missile (JAGM)	<b>Project (Number/Name)</b> JA6 / Joint Air-To-Ground Missile (JAGM)
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Event Name	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
System Qualification Testing																												
MS Decision Preparation																												
(1) MS B Decision																												
(2) CDR - All Up Round																												
EMD																												
Army System & Integration Testing																												
(3) MS C Decision																												
(4) LRIP 1 Option																												
Production & Deployment																												
(5) IOC																												
(6) Full Rate Production (FRP) Decision																												
(7) Initial Operational Test & Evaluation (IOT&E)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2017 Army</b>		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605450A / <i>Joint Air-to-Ground Missile (JAGM)</i>	<b>Project (Number/Name)</b> JA6 / <i>Joint Air-To-Ground Missile (JAGM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Qualification Testing	3	2014	4	2015
MS Decision Preparation	1	2013	4	2015
MS B Decision	4	2015	4	2015
CDR - All Up Round	2	2016	2	2016
EMD	4	2015	4	2017
Army System & Integration Testing	4	2015	4	2017
MS C Decision	4	2017	4	2017
LRIP 1 Option	4	2017	4	2017
Production & Deployment	4	2017	4	2021
IOC	4	2018	4	2018
Full Rate Production (FRP) Decision	2	2019	2	2019
Initial Operational Test & Evaluation (IOT&E)	3	2017	3	2017

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