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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army	Date: February 2018
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Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0210609A / Paladin Integrated Management (PIM)							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	39.902	6.112	0.000	-	0.000	0.000	0.000	0.000	9.406	0.000	55.420
ED8: <i>Paladin Integrated Management (PIM)</i>	-	39.902	6.112	0.000	-	0.000	0.000	0.000	0.000	9.406	0.000	55.420

A. Mission Description and Budget Item Justification

Paladin Integrated Management (PIM) is an ACAT 1C Acquisition Program. The program will replace the current fleet of M109 Family of Vehicles (FoV) consisting of the M109A6 Paladin Self Propelled Howitzer and M992A2 Field Artillery Ammunition Supply Vehicle (FAASV). PIM is an Army Modernization Program that addresses a critical capability gap created by the Non-Line of Sight Cannon termination in June of 2009 as well as obsolescence and Space, Weight, and Power (SWAP) issues in the M109 FoV current fleet. The PIM system integrates current Bradley Fighting Vehicle suspension and drive train items, Future Combat Systems (FCS) developed Electric Gun Drive systems and current fleet (M109A6) fire control systems into a new chassis providing better force protection, survivability and increases in electrical power over the current fleet. PIM is a two vehicle system: The M109A7 Self Propelled Howitzer (SPH) and the M992A3 Carrier Ammunition Tracked (CAT). The SPH has all characteristics listed above. The CAT utilizes all of these same components and traits except those related directly to the cannon system. The PIM system replaces the current M109 FoV on a one for one basis, in the cannon fires battalions in the Armored Brigade Combat Team Formations and the Echelons above Brigade (EAB). The overall intent is to increase Soldier force protection, vehicle survivability, provide an appropriate amount of SWAP capacity to add future capabilities, increase vehicle reliability, reduce life cycle costs and extend the life of the M109 FoV through FY 2050.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019 Base</u>	<u>FY 2019 OCO</u>	<u>FY 2019 Total</u>
Previous President's Budget	41.498	6.112	0.000	-	0.000
Current President's Budget	39.902	6.112	0.000	-	0.000
Total Adjustments	-1.596	0.000	0.000	-	0.000
• Congressional General Reductions	-0.020	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.576	-			

Change Summary Explanation

No funding in FY19

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COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
ED8: <i>Paladin Integrated Management (PIM)</i>	-	39.902	6.112	0.000	-	0.000	0.000	0.000	0.000	9.406	0.000	55.420
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Paladin Integrated Management (PIM) is an ACAT 1C Acquisition Program. The program will replace the current fleet of M109 Family of Vehicles (FoV) consisting of the M109A6 Paladin Self Propelled Howitzer and M992A2 Field Artillery Ammunition Supply Vehicle (FAASV). PIM is an Army Modernization Program that addresses a critical capability gap created by the Non-Line of Sight Cannon termination in June of 2009 as well as obsolescence and Space, Weight, and Power (SWAP) issues in the M109 FoV current fleet. The PIM system integrates current Bradley Fighting Vehicle suspension and drive train items, Future Combat Systems (FCS) developed Electric Gun Drive systems and current fleet (M109A6) fire control systems into a new chassis providing better force protection, survivability, and increases in electrical power over the current fleet. PIM is a two vehicle system: The M109A7 Self Propelled Howitzer (SPH) and the M992A3 Carrier Ammunition, Tracked (CAT). The SPH has all characteristics listed above. The CAT utilizes all these same components and traits except those related directly to the cannon system. The PIM system replaces the current M109 FoV on a one for one basis, in the cannon fires battalions in the Armored Brigade Combat Team Formations and the Echelons above Brigade (EAB). The overall intent is to increase Soldier force protection, vehicle survivability, provide an appropriate amount of SWAP capacity to add future capabilities, increase vehicle reliability, reduce life cycle costs, and extend the life of the M109 FoV through FY 2050.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Paladin/FAASV Integrated Management (PIM) Development Description: Funding is provided for the following contractor developmental efforts: FY 2018 Plans: Funding enables the government to complete all efforts on the M109 FOV Program to include the close out of the existing EMD work effort. FY 2018 to FY 2019 Increase/Decrease Statement: There is no funding in FY19	28.908	1.755	-	-	-
Title: Test and Evaluation Description: Funding is provided for the following Government test efforts:	5.973	-	-	-	-
Title: Program Management Description: Funding is provided for the following program management support:	2.295	1.579	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<i>FY 2018 Plans:</i> Continue the Government System Engineering and Program Management for the total program including: Original Equipment Manufacturer (OEM) management consisting of weekly, monthly, and quarterly program management reviews; continue contract execution management for the EMD phase contract until completion of all efforts in FY 2018. Manage Government Developmental System Test and Evaluation program as it enters the LRIP testing phase. Management of the program cost, schedule, and performance metrics including making programmatic trade-off decisions. Management of Other Governmental Agencies (OGAs) that support the PIM program.					
<i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> There is no funding in FY19					
<i>Title:</i> Training <i>Description:</i> Funding is provided for the following training government and contractor efforts:	2.726	2.778	-	-	-
<i>FY 2018 Plans:</i> Funding provides for the review of current training support packages, training aids and devices based on the EMD effort for cannon system development.					
<i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> There is no funding in FY19					
Accomplishments/Planned Programs Subtotals	39.902	6.112	-	-	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019 Base</u>	<u>FY 2019 OCO</u>	<u>FY 2019 Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• GZ0410: SSN: GZ0410000; <i>Paladin Integrated Management</i>	584.089	772.149	354.951	67.000	421.951	645.382	666.674	650.878	665.024	1,710.096	6,116.243
Remarks											

D. Acquisition Strategy											
The PIM Program was initiated on 16 August 2007 under the BAE Systems, Inc., System Technical Support (STS) Contract W56HZV-07-C-0096. Subsequent work directives were awarded under BAE STS contract W56HZV-07-C-0256 to further define the configuration of the PIM vehicles. On 14 August 2009, a Research,											

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<p>Development, Test and Evaluation (RDT&E) Contract W56HZV-09-C-0550 was awarded to BAE Systems Inc. for the Prototype Development and Fabrication of 7 prototype vehicles (5 PIM Self Propelled Howitzer (SPH) Systems and 2 PIM Carrier Ammunition, Tracked (CAT) vehicles). A Comprehensive Contract Modification (CCM) award to the RDT&E contract was accomplished on 6 January 2012. This modification allows for the completion of the design engineering and initial developmental test portion of the Engineering and Manufacturing Development (EMD) Phase and transfers the system responsibility for the program from the Government to BAE Systems Inc. An additional modification to the EMD contract was awarded on 18 July 2014 to extend the contract until 31 March 2017 to cover contractor support to Production Qualification Testing (PQT), the Logistics Demonstration, and Initial Operational Test & Evaluation (IOT&E). The awarded Low-Rate Initial Production (LRIP) contract is of a Fixed Price Incentive Firm Target (FPIF) contract type for procurement of vehicles with a period of performance running from November 2013 through approximately June 2019. The LRIP contract will provide for three LRIP years with the initial base year including 19 SPHs and 18 CATs and the remaining three option years with 18 sets, 30 sets and 48 sets, respectively (each set consisting of one each SPH and CAT) of PIM vehicles. The Full Rate Production (FRP) contract is planned as a FPIF contract with the option to convert to a Firm Fixed Price (FFP) contract after the first year of FRP. The FRP contract provides for the remaining PIM vehicles to fulfill the requirement up to the Army Acquisition Objective of 580 sets.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Data	SS/CPIF	BAE Systems : York, PA	1.515	-		-		-		-		-	0.000	1.515	-
Training	MIPR	Various OGAs : Various	7.675	2.726	Dec 2016	2.778		-		-		-	0.000	13.179	-
PIM Development-Government	MIPR	Various OGAs : Various	30.798	3.616	Dec 2016	1.755		-		-		-	0.000	36.169	-
PIM Development-Contractor	SS/CPIF	BAE Systems : York, PA	98.114	25.292	Dec 2016	-		-		-		-	0.000	123.406	-
Subtotal			138.102	31.634		4.533		-		-		-	0.000	174.269	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
PMO/PEO Support	MIPR	PM/PEO Paladin/FAASV : Picatinny	16.840	2.295	Dec 2016	1.579		-		-		-	0.000	20.714	-
Subtotal			16.840	2.295		1.579		-		-		-	0.000	20.714	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 Level Testing	MIPR	Various OGAs : Various	58.621	5.973	Dec 2016	-		-		-		-	0.000	64.594	-
Subtotal			58.621	5.973		-		-		-		-	0.000	64.594	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			213.563	39.902		6.112		-		-		-	0.000	259.577	N/A

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	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army			Date: February 2018		
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
Government Development Test																												
Low Rate Initial Production Deliveries																												
Full Up System Live Fire Test																												
IOTE 2																												
Full Rate Production Decision																												
TM Verification																												
FUE Net																												
Delta TM Verification																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Contractor Testing	4	2012	4	2015
Government Development Test	4	2012	3	2017
Low Rate Initial Production Contract	1	2014	2	2016
Low Rate Initial Production Deliveries	2	2015	4	2018
Full Up System Live Fire Test	3	2015	1	2017
IOTE 2	2	2018	2	2018
Full Rate Production Decision	4	2018	4	2018
TM Verification	2	2016	1	2017
FUE Net	1	2017	2	2017
Delta TM Verification	4	2017	4	2017