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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>					PE 0210609A / <i>Paladin Integrated Management (PIM)</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	80.263	152.288	-	152.288	42.060	6.112	-	-	-	280.723
ED8: <i>Paladin Integrated Management (PIM)</i>	-	-	80.263	152.288	-	152.288	42.060	6.112	-	-	-	280.723

A. Mission Description and Budget Item Justification

Paladin Integrated Management (PIM) is an ACAT 1D 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 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 less those that relate 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. Program Change Summary (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	83.300	152.440	-	152.440
Current President's Budget	-	80.263	152.288	-	152.288
Total Adjustments	-	-3.037	-0.152	-	-0.152
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.037			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.152	-	-0.152
• Other Adjustments 1	-	-3.000	-	-	-

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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
ED8: <i>Paladin Integrated Management (PIM)</i>	-	-	80.263	152.288	-	152.288	42.060	6.112	-	-	-	280.723
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Paladin Integrated Management (PIM) is an ACAT 1D 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 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 less those that relate 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 2014	FY 2015	FY 2016
Title: Paladin/FAASV Integrated Management (PIM) Development	-	57.091	73.367
Description: Funding is provided for the following Contractor developmental efforts:			
FY 2015 Plans: Finalization of developmental fixes, sub-system qualification, and testing for production as well as the completion of the System Level Developmental testing. Continuance of engineering development and testing for Corrective Actions, Producibility, and Obsolescence (CPOs) and Software Phase III efforts required for Low Rate Initial Production (LRIP) production. Continue Software Phase II maintenance efforts for CPO functionality and executing Software Formal Qualification Testing (FQT) for Software Phase III (SW PH III). Start the testing of an Objective Underbelly Kit per guidance of the Defense Acquisition Executive (DAE.) Execute the Log Demonstration (LOG DEMO) and Manual validation supporting Initial Operational Test (IOT) to meet requirements for fielding. Begin the execution of the Production Qualification Test (PQT) and Full Up System Live-Fire (FUSL) testing phase at Army test centers using LRIP platforms.			
FY 2016 Plans: Funding provides contractor support for the execution of the final Engineering and Manufacturing Development (EMD) testing for the M109A7 Self Propelled Howitzer (SPH) and the M992A3 Carrier Ammunition, Tracked (CAT). These tests include Production			

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0210609A / <i>Paladin Integrated Management (PIM)</i>	Project (Number/Name) ED8 / <i>Paladin Integrated Management (PIM)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
<p>Qualification Test (PQT), Initial Operational Test and Evaluation (IOT&E), Full Up System Live Fire (FUSL), Threshold 2 (T2) and Under Belly Armor characterization testing. Threshold 1 (T1) is the base vehicle configuration without add-on armor. T2 is the vehicle with add-on armor kits to increase force protection/survivability. These events will be conducted at various test sites throughout the US including Yuma Proving Grounds (YPG), Aberdeen Proving Grounds (APG), White Sands Missile Range (WSMR), and the Cold Regions Test Center (CRTC). Software Phase III maintenance and Training Aids, Devices, Simulators and Simulations (TADSS) development will also be conducted during this year. New Equipment Training (NET) Programs of Instruction (POI) development and execution to support IOT&E will be accomplished during this period. All the listed events are required to complete the various documentation requirements and test reports that will determine the operational suitability of the system and support the Full Rate Production decision in 2nd QTR FY 2017.</p>			
<p>Title: Test and Evaluation</p> <p>Description: Funding is provided for the following government test efforts:</p> <p>FY 2015 Plans: Complete testing of developmental fixes, sub-system qualification, and System Level Developmental testing. Complete testing for Corrective Actions, Producibility, and Obsolescence (CPO) and Software Phase III efforts required for Low Rate Initial Production (LRIP) production- complete SW Ph III Formal Qualification Testing (FQT) for the SPH and the CAT platforms. Start the testing of an Objective Underbelly Kit per guidance of the Defense Acquisition Executive (DAE.) Execute the Log Demonstration and Manual validation effort supporting IOT and to meet requirements for fielding. Begin the execution of the PQT and Full Up Systems Live-Fire (FUSL) testing phase at Army test centers using LRIP platforms.</p> <p>FY 2016 Plans: Funding provides program support and execution of the final EMD testing for the M109A7 Self Propelled Howitzer (SPH) and the M992A3 Carrier Ammunition, Tracked (CAT). These tests include Production Qualification Test (PQT), Initial Operational Test and Evaluation (IOT&E), Full Up System Live fire (FUSL), T2 and the DAE directed Under Belly characterization testing. T2 is the vehicle with add-on armor kits to increase force protection/survivability. These events will be conducted at various test sites throughout the US including Yuma Proving Grounds (YPG), Aberdeen Proving Grounds (APG), White Sands Missile Range (WSMR), and the Cold Regions Test Center (CRTC).</p>	-	9.485	71.311
<p>Title: Program Management</p> <p>Description: Funding is provided for the following program management support:</p> <p>FY 2015 Plans: 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</p>	-	8.003	4.104

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
<p>contract execution management for the EMD phase contract until completion of all efforts in FY 2016. Manages 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.</p> <p>FY 2016 Plans: 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 2017. Manages 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.</p>				
<p>Title: Training</p> <p>Description: Funding is provided for the following training government and contractor efforts:</p> <p>FY 2015 Plans: Complete basic training development to support LRIP Operational Test (OT), Maintenance training to support LOG DEMO and Technical Manual (TM) Validation efforts. Conduct training efforts to validate the training Programs of Instruction (POI's) for designated OT Army units. Complete Training Aids, Devices, Simulators and Simulations (TADSS) for OT designated units going into the Operational Test Phase of the program.</p> <p>FY 2016 Plans: Complete final development of training support packages and POI's to support IOT&E and LOG verification events. Complete Training Aids, Devices, Simulators and Simulations for Operational Test units in support of IOT&E.</p>		-	4.879	2.796
<p>Title: Data</p> <p>Description: Funding is provided for the following data contractor efforts:</p> <p>FY 2015 Plans: Maintain Contractor Technical Data Packages. Continue the validation of Technical Publications that support LOG DEMO and TM Validation as well as fielding's to active and reserve components organizations.</p> <p>FY 2016 Plans:</p>		-	0.805	0.710

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Maintain Contractor Technical Data Packages. Continue the Validation of Technical Publications that will support IOT&E and the future Active and Reserve component units during fielding.			
Accomplishments/Planned Programs Subtotals	-	80.263	152.288

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• <i>Paladin Integrated Management</i> <i>Paladin Integrated Management</i>	199.477	247.400	273.850	-	273.850	473.107	667.525	661.758	658.739	3,479.964	6,661.820

Remarks

D. Acquisition Strategy

The PIM Program was initiated on 16 August 07 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, 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 Jan 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 Jul 2014 to extend the contract until 31 Mar 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 Nov 2013 through approximately Jun 2019. The LRIP contract will provide for three LRIP years with the initial base year including 19 SPHs and 18 CATs and the remaining two option years with 18 sets and 30 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 that converts to a Firm Fixed Price (FFP) contract after the second 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.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
Data	SS/CPIF	BAE Systems : York, PA	0.000	-		0.805	Dec 2014	0.710	Dec 2015	-		0.710	-	1.515	-
Training	SS/CPIF	BAE Systems : York, PA	0.000	-		4.879	Dec 2014	2.796	Dec 2015	-		2.796	-	7.675	-
PIM Development-Government	MIPR	Various OGAs : Various	0.000	-		15.505	Dec 2014	7.687	Dec 2015	-		7.687	-	23.192	-
PIM Development-Contractor	SS/CPIF	BAE Systems : York, PA	0.000	-		37.370	Dec 2014	65.680	Dec 2015	-		65.680	-	103.050	-
Subtotal			0.000	-		58.559		76.873		-		76.873	-	135.432	-

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			
PMO/PEO Support	MIPR	PM/PEO Paladin/FAASV : Picatinny	0.000	-		1.901	Dec 2014	4.104	Dec 2015	-		4.104	-	6.005	-
Subtotal			0.000	-		1.901		4.104		-		4.104	-	6.005	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 Level Testing	MIPR	Various OGAs : Various	0.000	-		19.803	Dec 2014	71.311	Dec 2015	-		71.311	-	91.114	-
Subtotal			0.000	-		19.803		71.311		-		71.311	-	91.114	-

			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-		80.263		152.288		-		152.288	-	232.551	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0210609A / <i>Paladin Integrated Management (PIM)</i>	Project (Number/Name) ED8 / <i>Paladin Integrated Management (PIM)</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Contractor Testing																												
Government Development Test																												
(1) Milestone C																												
Low Rate Initial Production Contract																												
Low Rate Initial Production Deliveries																												
Full Up System Live Fire Test																												
IOTE																												
(2) Full Rate Production Decision																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
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Schedule Details

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