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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army											Date: February 2016	
Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0210609A / <i>Paladin Integrated Management (PIM)</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	-	77.210	152.288	41.498	-	41.498	6.112	0.000	0.000	0.000	0.000	277.108
ED8: <i>Paladin Integrated Management (PIM)</i>	-	77.210	152.288	41.498	-	41.498	6.112	0.000	0.000	0.000	0.000	277.108

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 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	80.263	152.288	42.060	-	42.060
Current President's Budget	77.210	152.288	41.498	-	41.498
Total Adjustments	-3.053	0.000	-0.562	-	-0.562
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-3.053	-	-0.562	-	-0.562

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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
ED8: <i>Paladin Integrated Management (PIM)</i>	-	77.210	152.288	41.498	-	41.498	6.112	0.000	0.000	0.000	0.000	277.108
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 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Paladin/FAASV Integrated Management (PIM) Development	54.039	84.773	30.504	-	30.504
Description: Funding is provided for the following contractor developmental efforts:					
FY 2015 Accomplishments:					
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. Continued Software Phase II maintenance efforts for CPO functionality and executing Software Formal Qualification Testing (FQT) for Software Phase III (SW PH III). Started 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. Began 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:					

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>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 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 this year. New Equipment Training (NET) Programs of Instruction (POI) development and execution to support IOT&E will be accomplished this year. All of 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>FY 2017 Base 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 Qualification Test (PQT), Initial Operational Test and Evaluation (IOT&E), Full Up System Live Fire (FUSL), and Under Belly Armor characterization testing. The reduced funding level from FY 16 to FY 17 reflects the culmination of the test events and writing of the test reports, addressing any issues discovered during test and the shift of the actual IOT&E test event into the 1st QTR FY17. 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 this year. New Equipment Training (NET) Programs of Instruction (POI) development and execution to support IOT&E will be accomplished this year. All of 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 Accomplishments:</p>	9.012	55.644	5.973	-	5.973

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Completed testing of developmental fixes, sub-system qualification, and System Level Developmental testing. Completed testing for Corrective Actions, Producibility, and Obsolescence (CPO) and Software Phase III efforts required for Low Rate Initial Production (LRIP); completed Software Phase III Formal Qualification Testing (FQT) for the SPH and the CAT platforms. Started the testing of an Objective Underbelly Kit per guidance of the Defense Acquisition Executive (DAE.) Executed the Log Demonstration and Manual validation effort supporting IOT and to meet requirements for fielding. Began 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 Underbelly 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> <p>FY 2017 Base 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 Underbelly 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>					
<p>Title: Program Management</p> <p>Description: Funding is provided for the following program management support:</p> <p>FY 2015 Accomplishments: Continued 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; continued contract execution management for the EMD phase contract until completion of all efforts in FY 2016. Managed Government Developmental System Test and Evaluation program as it entered</p>	8.475	8.365	2.295	-	2.295

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>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. 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.</p> <p>FY 2017 Base 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. 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.</p>					
<p>Title: Training</p> <p>Description: Funding is provided for the following training government and contractor efforts:</p> <p>FY 2015 Accomplishments: Completed basic training development to support LRIP Operational Test (OT), Maintenance training to support LOG DEMO and Technical Manual (TM) validation efforts. Conducted training efforts to validate the training Programs of Instruction (POI's) for designated OT Army units. Completed 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:</p>	4.879	2.796	2.726	-	2.726

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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.					
FY 2017 Base Plans: Complete final development of training support packages and POI's to support IOT&E and Full Rate Decision. Complete Training Aids, Devices, Simulators and Simulations for Operational Test units in support of IOT&E.					
Title: Data	0.805	0.710	-	-	-
Description: Funding is provided for the following data contractor efforts:					
FY 2015 Accomplishments: Maintained Contractor Technical Data Packages. Continued the validation of Technical Publications that support LOG DEMO and TM validation as well as fielding's to active and reserve component organizations.					
FY 2016 Plans: 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	77.210	152.288	41.498	-	41.498

C. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• <i>Paladin Integrated Management:</i>	247.400	273.850	469.305	125.184	594.489	662.413	656.599	653.494	663.204	2,811.927	6,563.376
<i>Paladin Integrated Management</i>											

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, 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

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<p>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 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.</p>		
E. Performance Metrics		
N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
2040 / 5				PE 0210609A / <i>Paladin Integrated Management (PIM)</i>					ED8 / <i>Paladin Integrated Management (PIM)</i>							
Product Development (\$ 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	
Data	SS/CPIF	BAE Systems : York, PA	0.000	0.805	Dec 2014	0.710	Dec 2015	-		-		-	0	1.515	0	
Training	SS/CPIF	BAE Systems : York, PA	0.000	4.879	Dec 2014	2.796	Dec 2015	2.726	Dec 2016	-		2.726	2.778	13.179	0	
PIM Development-Government	MIPR	Various OGAs : Various	0.000	11.091	Dec 2014	19.707	Dec 2015	3.616	Dec 2016	-		3.616	1.755	36.169	0	
PIM Development-Contractor	SS/CPIF	BAE Systems : York, PA	0.000	42.948	Dec 2014	65.066	Dec 2015	26.888	Dec 2016	-		26.888	0	134.902	0	
Subtotal			0.000	59.723		88.279		33.230		-		33.230	4.533	185.765	0.000	
Support (\$ 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	
PMO/PEO Support	MIPR	PM/PEO Paladin/FAASV : Picatinny	0.000	8.475	Dec 2014	8.365	Dec 2015	2.295	Dec 2016	-		2.295	1.579	20.714	0	
Subtotal			0.000	8.475		8.365		2.295		-		2.295	1.579	20.714	0.000	
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	
System Level Testing	MIPR	Various OGAs : Various	0.000	9.012	Dec 2014	55.644	Dec 2015	5.973	Dec 2016	-		5.973	0	70.629	0	
Subtotal			0.000	9.012		55.644		5.973		-		5.973	0.000	70.629	0.000	
Project Cost Totals			0.000	77.210		152.288		41.498		-		41.498	6.112	277.108	0.000	

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

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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
Contractor Testing																												
Government Development Test																												
Low Rate Initial Production Contract																												
Low Rate Initial Production Deliveries																												
Full Up System Live Fire Test																												
IOTE																												
(1) Full Rate Production Decision													▲															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
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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
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	1	2017
IOTE	4	2016	1	2017
Full Rate Production Decision	2	2017	2	2017

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