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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Army **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 5: <i>Development &amp; Demonstration (SDD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604854A: <i>Artillery Systems - EMD</i>
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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	99.937	120.032	167.797	-	167.797	121.344	68.405	114.512	28.638	Continuing	Continuing
516: <i>PALADIN/FAASV</i>	99.937	120.032	167.797	-	167.797	121.344	68.405	114.512	28.638	Continuing	Continuing

## Note

Change Summary Explanation:

FY 2011: Funding increase to support the Paladin/FAASV program.

FY 2013: Funding increase to support Paladin program requirements: Developmental and Live Fire Test Management; Development of Software Phase II, Logistics Development, Low Rate Initial Production (LRIP) planning, execute Milestone C (June 2013)and Limited User Test (LUT), establish training teams to support fielding, and Technical Data Package updates.

## A. Mission Description and Budget Item Justification

This program element supports the Joint Light Weight 155mm Howitzer (LW155) and the Paladin/FAASV Improvement programs. Beginning in FY11, only the Paladin/FAASV Improvement program has RDTE funding in this program element.

The Paladin/Field Artillery Ammunition Support Vehicle (FAASV) Integrated Management (PIM) process will provide for the procurement of the approved obsolescence and sustainment modifications to the 155MM Self-Propelled Howitzer and FAASV, increase reliability and maneuverability as well as reduce life cycle costs. These will include leveraging Bradley common components, integrating the engine, transmission, final drives, and suspension. It will also replace obsolete components such as the Dynamic Reference Unit-Hybrid (DRU-H), hydraulics, fatigued hull structures as well as focus on powertrain, power management and electronic sub-systems.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	53.624	120.146	82.995	-	82.995
Current President's Budget	99.937	120.032	167.797	-	167.797
Total Adjustments	46.313	-0.114	84.802	-	84.802
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.083	-			
• Other Adjustments 1	49.396	-0.114	84.802	-	84.802

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Exhibit R-2A, RDT&E Project Justification: PB 2013 Army									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604854A: Artillery Systems - EMD				PROJECT 516: PALADIN/FAASV			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
516: PALADIN/FAASV	99.937	120.032	167.797	-	167.797	121.344	68.405	114.512	28.638	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
The M109 Family of Vehicles (FOV) (Paladin/FAASV Integrated Management (PIM) Program provides for the procurement of sustainment and obsolescence modifications to the 155MM Self-Propelled Howitzer and FAASV. These modifications reside in the area of force protection, survivability, maneuverability, and commonality. The overall intent is to reduce life cycle costs and extend the platforms useful life through 2050. The modernization aspect of the program leverages Bradley common components, integrating the engine, transmission, final drives, and suspension as well as a new power management and electronic sub-systems. It will also replace obsolete components such as the Dynamic Reference Unit-Hybrid (DRU-H), Paladin Digital Fire Control System - Replacement (PDFCS-R), hydraulics, and fatigued hull structures.											
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2011	FY 2012	FY 2013	
Title: Paladin/FAASV Integrated Management (PIM) Development  Articles:  Description: Funding is provided for the following effort  FY 2011 Accomplishments: Paladin Integrated Management (PIM) Development for integration of common components into prototype vehicles for testing to increase the reliability and maneuverability as well as reduce life cycle costs.  FY 2012 Plans: Manage Program and Design Reviews, Program Baseline, Test (Developmental Test and Live Fire Test) Management; Development of Software Phase II, Logistics Development, Low Rate Initial Production (LRIP) planning, develop and sustain program documentation.  FY 2013 Plans: Program Review to include test (Developmental Test and Live Fire Test) Management; Development of Software Phase II, Logistics Development, and Low Rate Initial Production (LRIP) planning, execute Milestone C (June 13), Limited User Test (LUT), develop and sustain program documentation.								87.836	80.950	122.395	
								0	0		
Title: Test and Evaluation  Articles:  Description: Funding is provided for the following effort								1.525	12.000	15.296	
								0	0		

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Exhibit R-2A, RDT&E Project Justification: PB 2013 Army		DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604854A: Artillery Systems - EMD	PROJECT 516: PALADIN/FAASV		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012	FY 2013
FY 2011 Accomplishments: Test and Evaluation to include contractor testing, government development test, and live-fire testing.  FY 2012 Plans: Execute developmental testing that includes qualification of subsystems, system safety, performance testing, live fire exploitation testing and logistics demonstration.  FY 2013 Plans: Execute developmental testing that includes performance testing, live fire exploitation testing, logistics demonstration, and Limited User Test (LUT).				
Title: Program management  Description: Program management  FY 2011 Accomplishments: Program management  FY 2012 Plans: Program management  FY 2013 Plans: Program management		Articles:  10.576 0	27.082 0	16.890
Title: Training  Description: Training  FY 2013 Plans: Training Development of PIM Program in order to establish New Requirement Training (NET) Teams to support fielding.		-	-	6.428
Title: Data  Description: Data Rights  FY 2013 Plans: Contractor Technical Data Package Updates and Technical Publications (in Training Estimate)		-	-	6.788
Accomplishments/Planned Programs Subtotals		99.937	120.032	167.797

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604854A: Artillery Systems - EMD				PROJECT 516: PALADIN/FAASV			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• Paladin/FAASV: <i>Paladin/FAASV Mod &amp; PIM Mod in Service</i>	5.244	46.876	216.442		216.442		311.924	303.114	471.658	3,566.716	5,191.766
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. The work directive was awarded to initiate PIM development and provide Government Furnished Equipment and Materials to the contractor for build of the Independent Research and Development (IRAD) vehicle. 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 Systems (SPHS) 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 Engineering and Manufacturing Development (EMD) Phase and transfers the system responsibility for the program from the Government to BAE Systems Inc.											
E. Performance Metrics											
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2013 Army</b>											<b>DATE:</b> February 2012		
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<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</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>
PMO Support	MIPR	PM Paladin/ FAASV:Picatinny, NJ/ TACOM	41.016	20.023		16.890		-		16.890	Continuing	Continuing	Continuing
<b>Subtotal</b>			41.016	20.023		16.890		-		16.890			
<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</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>
Training	SS/CPIF	BAE Systems:York, PA	-	-		6.428		-		6.428	Continuing	Continuing	Continuing
Data	SS/CPIF	BAE:York, PA	-	-		6.788		-		6.788	Continuing	Continuing	Continuing
Small Business Innovative Research/Small Business Technology Transfer Program	Various	TACOM:Warren, MI	3.668	-		-		-		-	Continuing	Continuing	Continuing
PIM Development	SS/CPIF	BAE, Systems:York, PA	313.537	88.009		122.395		-		122.395	0.000	523.941	0.000
<b>Subtotal</b>			317.205	88.009		135.611		-		135.611			
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</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>
System Level Testing	Various	Various OGAs:Various	29.017	12.000		15.296		-		15.296	Continuing	Continuing	Continuing
<b>Subtotal</b>			29.017	12.000		15.296		-		15.296			
			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			387.238	120.032		167.797		-		167.797			
<b>Remarks</b>													

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Army			<b>DATE:</b> February 2012		
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Delta Critical Design Review																												
Government Development Test																												
Milestone C																												
Low Rate Initial Production Contract																												
Low Rate Initial Production Deliveries																												
Full Up System Live Fire Test																												
IOTE																												
Full Rate Production Decision																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Army			<b>DATE:</b> February 2012
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Delta Critical Design Review	3	2012	3	2012
Government Development Test	3	2011	2	2015
Milestone C	3	2013	3	2013
Low Rate Initial Production Contract	3	2013	2	2017
Low Rate Initial Production Deliveries	3	2015	4	2017
Full Up System Live Fire Test	4	2015	4	2016
IOTE	3	2016	4	2016
Full Rate Production Decision	2	2017	2	2017