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Exhibit R-2, PB 2011 Army RDT&E Budget Item Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602623A: JOINT SERVICE SMALL ARMS PROGRAM							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	9.165	7.634	7.893	0.000	7.893	8.244	8.604	8.758	8.906	0	67.097
H21: JT SVC SA PROG (JSSAP)	7.326	7.634	7.893	0.000	7.893	8.244	8.604	8.758	8.906	Continuing	Continuing
S50: SMALL ARMS APPLIED RESEARCH (CA)	1.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective of this program element is to design and develop individual and crew-served weapon technologies that enhance the fighting capabilities and survivability of dismounted battlefield personnel in support of all the Services. All Joint Service Small Arms Program (JSSAP) efforts are based upon the Joint Service Small Arms Master Plan (JSSAMP) and the Joint Capabilities Integration Development System's Small Arms Analyses. Project S50 funds congressional special interest items. Work in this PE is related to, and fully coordinated with, efforts in PE 0602624A (Weapons and Munitions Technology) and PE 0603607A (Joint Service Small Arms Program). The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. This program is managed by the US Army Armament Research, Development, and Engineering Center (ARDEC), Picatinny Arsenal, NJ.

B. Program Change Summary (\$ in Millions)	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	9.102	7.674	7.874	0.000	7.874
Current President's Budget	9.165	7.634	7.893	0.000	7.893
Total Adjustments	0.063	-0.040	0.019	0.000	0.019
• Congressional General Reductions		-0.040			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers					
• Reprogrammings	0.288	0.000			
• SBIR/STTR Transfer	-0.225	0.000			
• Adjustments to Budget Years	0.000	0.000	0.019	0.000	0.019

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
H21: <i>JT SVC SA PROG (JSSAP)</i>	7.326	7.634	7.893	0.000	7.893	8.244	8.604	8.758	8.906	Continuing	Continuing
A. Mission Description and Budget Item Justification This project designs and develops individual and crew-served weapon technologies that enable increased lethality for survivability of dismounted battlefield personnel in all the Services. All efforts are based upon the Joint Service Small Arms Master Plan (JSSAMP) and the Joint Capabilities Integration Development System's Small Arms Analyses. Work in this PE is related to, and fully coordinated with, efforts in PE 0602624A (Weapons and Munitions Technology) and PE 0603607A (Joint Service Small Arms Program). The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. This program is managed by the US Army Armament Research, Development, and Engineering Center (ARDEC), Picatinny, NJ.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Advanced Lethal Armament Technology for Small Arms: This effort addresses terminal effects and launch aspects of small arms weapon systems. In FY09, designed improvements and assessed trajectory correction and drag compensation sensors for 40 mm and 25 mm ammo; analyzed and confirmed projectile terminal effectiveness in laboratory environment; confirmed proof of principle recoil reduction concepts with recoil kinematic modeling. In FY10, fabricate and evaluate 2 advanced small caliber payload/warheads in laboratory; assess microelectromechanical systems (MEMs) setback generator critical components in lab environment; design ammo breadboard to demonstrate launch survivability, assess recoil reduction to multiple variation in loads and confirm with model. In FY11, will assess optimum small caliber payloads, fire control and fuzing through component demonstrations confirming critical characteristics, (such as flight dynamics) in a wind tunnel and will confirm results with modeling and simulation; will develop target-orientation sensors for small caliber payloads designs. <i>FY 2009 Accomplishments:</i> FY 2009							3.815	3.745	3.267	0.000	3.267

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #2 Advanced Fire Control Technology for Small Arms: This effort addresses advanced fire control technologies to reduce miss distance of small arms weapon systems. In FY09, evaluated improved ranging accuracy technologies mounted on individual weapons and used against moving targets; developed concepts to consolidate energy supply to multiple devices, such as sights and rangefinders, mounted on the rail systems; assessed the improvements in automated target location correction for very short time target exposures; and assessed increase in effectiveness with modeling and simulation tools. In FY10, will develop modeling and simulation tools to evaluate the soldier-small arms interface to determine factors influencing loss of accuracy in aiming; will design and fabricate advanced modular rail components; will evaluate weapon aiming concepts using target testbed components; will demonstrate critical gun barrel reference sensor components. In FY11, will evaluate capability of critical components to engage defilade and covered targets ; will design weapon-aiming components improving timeline and target centroid location to increase effectiveness; will perform critical lab advanced-aiming assessments; will conduct evaluation of tradeoffs resulting from the incorporation of enhancements to small arms critical components.		3.511	3.705	4.626	0.000	4.626
FY 2009 Accomplishments: FY 2009						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #3		0.000	0.184	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Accomplishments/Planned Programs Subtotals		7.326	7.634	7.893	0.000	7.893

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<p><u>C. Other Program Funding Summary (\$ in Millions)</u> N/A</p> <p><u>D. Acquisition Strategy</u> N/A</p> <p><u>E. Performance Metrics</u> 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.</p>		

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
S50: <i>SMALL ARMS APPLIED RESEARCH (CA)</i>	1.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> Congressional Interest Item funding for Small Arms Applied Research.											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Hybrid Luminescent Ammunition. This is a Congressional Interest Item. <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO							1.012	0.000	0.000	0.000	0.000
Program #2 5.56mm Aluminum Cartridge Case, Lake City Army Ammunition Plant. This is a Congressional Interest Item.							0.827	0.000	0.000	0.000	0.000

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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>								
				FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
<i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO								
Accomplishments/Planned Programs Subtotals				1.839	0.000	0.000	0.000	0.000
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A								
<u>D. Acquisition Strategy</u> N/A								
<u>E. Performance Metrics</u> 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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