Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603607A *I Joint Service Small Arms Program*

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	4.903	5.839	5.796	-	5.796	5.885	6.004	6.124	6.249	-	-
627: *Jt Svc Sa Prog (JSSAP)*	-	4.903	5.839	5.796	-	5.796	5.885	6.004	6.124	6.249	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) matures and demonstrates advanced technologies that provide greater lethality, target acquisition, fire control, and range at a significantly reduced weight. These technologies lighten the Soldier's load, provide improved battlefield mobility, and reduce logistics burden while maintaining or improving current levels of performance.

Efforts in this PE support the Army Science and Technology Lethality Portfolio.

Work in this PE is related to and fully integrated with the efforts funded in PE 0602623A (Joint Service Small Arms Program), PE 0602624A (Weapons and Munitions Technology) and PE 0602618A (Ballistic Technology).

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the Army Armament Research, Development, and Engineering Center (ARDEC), Picatinny Arsenal, NJ.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	5.105	5.839	5.787	-	5.787
Current President's Budget	4.903	5.839	5.796	-	5.796
Total Adjustments	-0.202	0.000	0.009	-	0.009
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.202	-			
• Civ Pay Adjustment	0.000	0.000	0.009	-	0.009

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603607A / *Joint Service Small Arms Program*	Project (Number/Name) 627 / *Jt Svc Sa Prog (JSSAP)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
627: *Jt Svc Sa Prog (JSSAP)*	-	4.903	5.839	5.796	-	5.796	5.885	6.004	6.124	6.249	-	-

A. Mission Description and Budget Item Justification

This Project matures and demonstrates advanced technologies that provide greater lethality, target acquisition, fire control, training effectiveness and range at a significantly reduced weight. These technologies lighten the Soldier's load, provide improved battlefield mobility, and reduce logistics burden while maintaining or improving current levels of performance.

Efforts in this Project support the Lethality Science and Technology Portfolio.

Work in this Project is related to and fully integrated with the efforts funded in Program Element (PE) 0602623A (Joint Service Small Arms Program) and PE 0602624A (Weapons and Munitions Technology).

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the Army Armament Research, Development, and Engineering Center (ARDEC), Picatinny Arsenal, NJ.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Advanced Small Unit (Squad) Small Arms Technology Demonstration	0.387	-	-
Description: Identify, advance, and demonstrate advanced technologies leading to the ability to improve Small Unit level effectiveness and utilize new small arms technological concepts to improve range overmatch capability against like-sized threat elements. ***FY 2016 Accomplishments:*** Demonstrated a closed loop fire control weapon modification kit to compensate for dismounted shooter wobble. User-interface components were controlled via target tracking software and embedded mobile processing hardware that optically monitor target position relative to point of aim in order to double probability of hit for rifles from 0-600m.			
Title: Small Arms Material and Process Technology Demonstration	1.629	-	-
Description: This effort focuses on state of the art material substrates and surface coatings matured in PE 0602623A to improve reliability, reduce maintenance and improve weapon diagnostics through embedded technology. ***FY 2016 Accomplishments:***			

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Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603607A / *Joint Service Small Arms Program*	**Project (Number/Name)** 627 / *Jt Svc Sa Prog (JSSAP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Demonstrated the application of solids substances that eliminate the need to apply lubricant to weapon components, reduce carbon fouling that builds up from weapon firing and reduce weapons maintenance time; achieved Technology Readiness Level (TRL) 6 for matured technologies; and transitioned Technical Data Package (TDP) formulation.			
Title: Volume Effects ***Description:*** This effort addresses the maturation and demonstration of emerging small arms technologies from PE 0602623A efforts into current and next generation weapon systems to address Volume (sustained suppressive and lethal fires for area targets) capability gaps for improved effectiveness at extended ranges. ***FY 2016 Accomplishments:*** Matured fire control and ammunition technologies for lightweight medium machine gun (up to 1200 meters range) and lightweight heavy machine gun (up to 2400 meters range) to support emerging next generation weapon system requirements and provided the capability to achieve desired accuracy and incapacitating effects with volume fire. ***FY 2017 Plans:*** Integrate and demonstrate weapon systems, fire control and ammunition technologies to support the Next Generation Squad Automatic Rifle (NGSAR) requirements for a lightweight medium machine gun (up to 1200 meters range) with increased lethality, reduced weight, and decreased detection. ***FY 2018 Plans:*** Will continue to support technology development for NGSAR requirements; investigate weapon systems, fire control, and ammunition technologies to increase the current performance of the lightweight medium machine gun.	0.960	2.362	2.373
Title: Precision Effects ***Description:*** This effort focuses on the maturation and demonstration of emerging small arms technologies from PE 0602623A efforts into current and next generation weapon systems to address precision fire (Precision fire is support fire in the offense during the assault and engagement of targets to the maximum effective range of the weapon), and fire control capability gaps for improved accuracy at extended ranges. ***FY 2016 Accomplishments:*** Matured and demonstrated advanced future sniper rifles, advanced optics and image processing algorithms and spotting scopes technologies to support emerging precision weapon system requirements with the ability to achieve desired accuracy and incapacitating effects with precision fire against personnel targets for the squad (up to 600m) and the Platoon (up to 2400m). ***FY 2017 Plans:***	0.582	1.582	1.428

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Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603607A / *Joint Service Small Arms Program*	**Project (Number/Name)** 627 / *Jt Svc Sa Prog (JSSAP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Integrate and demonstrate weapon systems, fire control and ammunition technologies to support the next generation weapon systems; address precision fire requirements for the squad (up to 600m range) and the Platoon (up to 2400m range) with increased lethality, reduced weight, and decreased weapon signature. ***FY 2018 Plans:*** Will optimize and demonstrate precision ammunition technologies to support precision ammunition requirements for extended range, accuracy and terminal effects required to perforate toughest targets and implement highly efficient aerodynamics.			
Title: Small Arms Systems Integration and Demo ***Description:*** This effort addresses the maturation and demonstration of small arms component technologies resulting from PE 0602623A efforts and applied into advanced small arms technologies as to inform the user requirement process, address operational capability gaps and transition mature components and technology concepts. ***FY 2017 Plans:*** Increase understanding of current lethality capabilities, gaps, and impacts on the Warfighter; assess small unit effectiveness on next generation leap ahead weapon systems supporting the Squad. ***FY 2018 Plans:*** Will continue to increase lethality capabilities and assess small arms effectiveness.	-	0.395	0.495
Title: Joint Service Small Arms Science and Technology Collaboration ***Description:*** This effort addresses the continued operations of the Joint Service Small Arms Program (JSSAP) office to coordinate and harmonize new Services' materiel requirements with potential joint applications, and to maintain awareness of the Services' efforts to improve Small Arms capabilities thus reducing duplication of ongoing and planned technology, acquisition and sustainment activities. ***FY 2016 Accomplishments:*** Matured a strategy for technology development in small arms weapon systems and enablers to increase the performance of small arms weapon systems in the hands of the Soldier, Marine, Sailor, Airman, or Coast Guardsman. Strategy applied to both the design and development of specific technologies, as well as the development of assessment methods and tools to measure or assess the performance of such technologies. ***FY 2017 Plans:*** Provide intensive management of the Department of Defense (DoD) small arms tech base; harmonize emerging material requirements; focus technology development efforts on material solutions that will transition to the Project Managers for further	1.345	1.500	1.500

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
development and eventual fielding; conduct long range plans and optimize strategies for joint applications; influence international small arms activities. ***FY 2018 Plans:*** Will continue to manage Joint Services Small Arms Programs; continue technology developmental efforts on material solutions for transitioning to small arms programs of record; continue to influence small arms technology maturation activities in collaboration with North Atlantic Treaty Organization (NATO) partners.			
Accomplishments/Planned Programs Subtotals	4.903	5.839	5.796

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A