Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army	Date: February 2018
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602623A *I Joint Service Small Arms Program (JSSAP)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	5.331	5.615	12.394	-	12.394	5.031	5.132	5.919	6.037	0.000	45.459
H21: *Jt Svc Sa Prog (JSSAP)*	-	5.331	5.615	12.394	-	12.394	5.031	5.132	5.919	6.037	0.000	45.459

A. Mission Description and Budget Item Justification

This Program Element (PE) investigates individual and crew-served weapon designs and technologies that enhance the fighting capabilities and survivability of the dismounted Warfighter in support of all of the Services. All work is led by the Joint Service Small Arms Program (JSSAP) and is 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 0601102A (Defense Research Sciences), PE 0602624A (Weapons and Munitions Technology), PE 0603607A (Joint Service Small Arms Program), and PE 0602618A (Ballistic Technology).

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

The work in this PE is performed by the Army Research, Development and Engineering Command (RDECOM).

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	5.545	5.615	5.576	-	5.576
Current President's Budget	5.331	5.615	12.394	-	12.394
Total Adjustments	-0.214	0.000	6.818	-	6.818
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.211	-			
• Adjustments to Budget Years	-	-	6.818	-	6.818
• FFRDC	-0.003	-	-	-	-

Change Summary Explanation

Funding increased in this PE to address higher priority Army Modernization efforts in the area of Soldier Lethality.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602623A / *Joint Service Small Arms Program (JSSAP)*	Project (Number/Name) H21 / *Jt Svc Sa Prog (JSSAP)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
H21: *Jt Svc Sa Prog (JSSAP)*	-	5.331	5.615	12.394	-	12.394	5.031	5.132	5.919	6.037	0.000	45.459

A. Mission Description and Budget Item Justification

This Project investigates individual and crew-served weapon component design and technologies that enable increased lethality for survivability of the dismounted Warfighter 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.

Efforts in this Project support the Army Science and Technology Lethality portfolio.

Work in this Project is related to, and fully coordinated with, efforts in Program Element (PE) 0602624A (Weapons and Munitions Technology) and PE 0603607A (Joint Service Small Arms Program) and PE 0602786A (Warfighter Technology).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Weapon System and Enablers	1.788	1.881	1.868
Description: This effort investigates and evaluates small arms weapon systems and enabling technologies to include: weapon size, weight and power consumption, barrel properties, recoil force, balance, and suitability. This effort also investigates scalable effects weapons in order to increase warfighter capability by providing one cartridge/weapon system delivering variable effects from non-lethal to lethal at greater ranges than currently available.			
FY 2018 Plans: Design and develop active stabilization technologies to increase hit probabilities and advance next generation fire control technologies; investigate high pressure weapon operation cycling for increase ammunition terminal performance and increase speed to target engagements; mature precision munitions components to increase probability of incapacitation against near and far term enemy threats; develop new techniques for evaluating and improving the reliability of weapon systems with the end goal of increasing the Mean Rounds Between Failure (MRBF) and Mean Rounds Between Stoppages (MRBS); and investigate technologies to increase weapon reliability/durability through use of advance coatings which reduce or eliminate the need for conventional lubricants in weapon action components; design and develop a small arms barrel characterization tool to determine optimal weapon thermal loading, heat input, bore stresses, and chemical, thermal, mechanical erosion.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602623A / *Joint Service Small Arms Program (JSSAP)*	**Project (Number/Name)** H21 / *Jt Svc Sa Prog (JSSAP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Will design and develop barrel and suppressor technologies to dissipate heat, and withstand higher chamber pressures as well as muzzle velocities. This design will yield increased small arms weapon performance. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease due to culmination of applied research efforts for advanced lubricant technologies.			
Title: Small Arms Ammunition Research ***Description:*** This effort addresses the design and evaluation of ammunition with reduced weight, signature, fouling and contaminants as well as improved terminal performance and improved performance against soft and hard targets. ***FY 2018 Plans:*** Design and develop ammunition technologies to support precision ammunition requirements for extended range, accuracy and terminal effects required to perforate toughest targets and implement highly efficient aerodynamics. These technologies support the development of next generation small arms ammunition. ***FY 2019 Plans:*** Will design and develop component technologies for a family of small arms ammunition in support of the Next Generation Squad Weapon that will result in increased probability of hit and effects on targets. Types of ammunition technologies to mature will include: enhanced performance round, advanced penetrating projectile, tracer round, reduced range training round ammunition (RRTA) and a RRTA tracer projectile. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increased to allow higher priority Army Modernization efforts on the area of Soldier Lethality.	2.929	3.079	10.226
Title: Small Arms Technology Applied Research ***Description:*** This effort supports the requirements analysis and the long-term investigation and maturation of technologies to fulfill the Department of Defense small arms capability requirements. The Joint Service Small Arms Program continuously utilizes studies and evaluations to determine the feasibility of novel material concepts; investigate all potential interfaces between the Soldier, training, weapon, optics, and the ammunition; and explore and evaluate interior and exterior ballistic component technologies to enhance weapon performance. ***FY 2018 Plans:*** Investigate and mature a high pressure operating system capability to defeat current and future threats to the dismounted warfighter; investigate active stabilization technologies integrated with advance next generation fire control technologies to increase hit probabilities, increase kinetic speed to target and decrease engagement time; develop scalable precision munition technologies to a Technical Readiness Level (TRL) 4 to increase Warfighter capability in anti-materiel, anti-personnel and other	0.614	0.655	0.300

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
specialized missions; develop to a TRL5 a Reduced Range Training Ammunition (RRTA) for reduced Surface Danger Zones (SDZ) ranges with a trajectory match to current combat ammunition; develop a system and method, both accurate and repeatable, to measure blowback produced by small caliber suppressors. ***FY 2019 Plans:*** Will incorporate small arms ammunition weapon technologies research into the Small Arms Ammunition Research project; will continue to investigate small arms technologies capable to defeat current and future threats to the dismounted warfighter as well as able to increase hit probabilities, kinetic speed to target, and decreased engagement time. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding decreased to allow higher priority Army Modernization efforts on the area of Soldier Lethality.			
Accomplishments/Planned Programs Subtotals	5.331	5.615	12.394

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A