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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army I BA 2: Applied Research					R-1 Program Element (Number/Name) PE 0602622A I Chemical, Smoke and Equipment Defeating Technology							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	3.895	5.027	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.922
552: Smoke/Novel Effect Mun	-	3.895	5.027	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.922
Note												
In Fiscal Year (FY) 2020, this Program Element (PE) is realigned with continuity of effort to:												
* PE 0602144A (Ground Technology)												
* PE 0602145A (Next Generation Combat Vehicle Technology)												
A. Mission Description and Budget Item Justification												
This PE investigates and evaluates obscurant technologies to increase personnel and platform survivability and develop and validate forensic analysis methods for military and homemade explosive devices, including their precursors and residue. Project 552 (Smoke/Novel Effects Munitions) pursues research in materials science as well as dissemination methodologies, mechanisms, technologies, and techniques to enable forensic analysis of explosive signatures.												
Work in this PE is related to, and fully coordinated with, PE 0603004A (Weapons and Munitions Advanced Technology), Project L97 (Smoke and Obscurants Advanced Technology) and PE 0603606A (Landmine Warfare and Barrier Advanced Technology), Project 608 (Countermines & Bar Dev).												
The cited work is consistent with the Under Secretary of Defense for Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy.												
This work is performed by the United States Army Futures Command												
B. Program Change Summary (\$ in Millions)				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total				
Previous President's Budget				4.004	5.032	5.612	-	5.612				
Current President's Budget				3.895	5.027	0.000	-	0.000				
Total Adjustments				-0.109	-0.005	-5.612	-	-5.612				
• Congressional General Reductions				-0.002	-0.005							
• Congressional Directed Reductions				-	-							
• Congressional Rescissions				-	-							
• Congressional Adds				-	-							
• Congressional Directed Transfers				-	-							
• Reprogrammings				-	-							
• SBIR/STTR Transfer				-0.107	-							
• Adjustments to Budget Years				-	-	-5.612	-	-5.612				

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<p><u>Change Summary Explanation</u></p> <p>FY20 decrease related to Science and Technology financial restructuring.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 2					R-1 Program Element (Number/Name) PE 0602622A / Chemical, Smoke and Equipment Defeating Technology				Project (Number/Name) 552 / Smoke/Novel Effect Mun			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
552: Smoke/Novel Effect Mun	-	3.895	5.027	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.922
Note In Fiscal Year (FY) 2020 this Project was realigned to: Program Element (PE) 0602145A Next Generation Combat Vehicle Technology * Project BG8 Obscuration Technology PE 0602144A Ground Technology * Project BL2 Explosive Forensics Technology												
A. Mission Description and Budget Item Justification This Project investigates and evaluates obscurant technologies that degrade threat force surveillance sensors and defeat the enemy's target acquisition devices, missile guidance, and directed energy weapons. This Project focuses on advanced infra-red and multi-spectral obscurant materials that provide effective, affordable, and efficient screening of deployed forces, while being safe and environmentally acceptable. Additionally, it researches and investigates forensic analysis technology in explosives and explosives-related chemical signatures, and develops and validates field sampling and forensics methods for use in a forward-deployed laboratory.  This Project sustains Army Science and Technology efforts supporting the Ground Maneuver portfolio.  In FY18/19, work in this Project is related to, and fully coordinated with, PE 0603004A (Weapons and Munitions Advanced Technology) / Project L97 (Smoke and Obscurants Advanced Technology) and PE 0603606A (Landmine Warfare and Barrier Advanced Technology) / Project 608 (Countermines & Bar Dev).  The cited work is consistent with the Under Secretary of Defense for Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Advanced Obscurants									1.481	1.514	-	
Description: This effort investigates new materials and compounds to enable safe, effective screening of personnel and equipment.												
FY 2019 Plans: Will continue to mature and characterize advanced bispectral, will advanced microwave and spectrally selective obscurants.												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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<b>Appropriation/Budget Activity</b> 2040 / 2	<b>R-1 Program Element (Number/Name)</b> PE 0602622A / <i>Chemical, Smoke and Equipment Defeating Technology</i>	<b>Project (Number/Name)</b> 552 / <i>Smoke/Novel Effect Mun</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
This research effort was realigned to PE 0602145A (Next Generation Combat Vehicle Technology) / Project BG8 (Obscuration Technology) in FY20 as part of the financial restructuring.			<b>FY 2020</b>
<b>Title:</b> Obscurant Enabling Technology <b>Description:</b> This effort investigates distribution technologies for various obscurants. <b>FY 2019 Plans:</b> Will document vulnerability studies analyses. Will develop new vehicle protection concepts based on vulnerability studies of anti-tank guided missiles. Will continue to conduct vulnerability studies of various technologies to obscurant/target defeat effects. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> This research effort was realigned to PE 0602145A (Next Generation Combat Vehicle Technology) / Project BG8 (Obscuration Technology) in FY20 as part of the financial restructuring.		0.966	1.950
<b>Title:</b> Forensic Analysis of Explosives <b>Description:</b> This effort investigates forensics analytical methods for military explosives, homemade explosives (HME), HME precursors, and residue analysis for attribution. <b>FY 2019 Plans:</b> Will investigate Photonic Integrated Circuits for chemical sensing of explosives, narcotics, and other chemicals of interest for forensic analysis and personnel borne detectors. Will investigate metal organic framework polymer composites to enhance selectivity in explosives detection. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> This research effort was realigned to PE 0602144A (Ground technology) / Project BL2 (Explosive Forensics Technology) i Fy20 as part of the financial restructuring.		1.448	1.420
<b>Title:</b> FY 2019 SBIR / STTR Transfer <b>Description:</b> FY 2019 SBIR / STTR Transfer <b>FY 2019 Plans:</b> FY 2019 SBIR / STTR Transfer <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2019 SBIR / STTR Transfer		-	0.143
<b>Accomplishments/Planned Programs Subtotals</b>		3.895	5.027
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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		
E. Performance Metrics N/A		