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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army **Date:** February 2020

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603606A / <i>Landmine Warfare and Barrier Advanced Technology</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	16.860	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	16.860
608: <i>Countermines & Bar Dev</i>	-	10.860	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.860
64C: <i>COUNTERMINE DEMONSTRATIONS (CA)</i>	-	6.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.000

Note

In Fiscal Year 2020 (FY20) this Program Element (PE) was realigned with continuity of effort to the following PEs:

- * PE 0603118A Soldier Lethality Advanced Technology
- * PE 0603462A Next Generation Combat Vehicle Advanced Technology

A. Mission Description and Budget Item Justification

This PE matures and demonstrates sensors, subsystems, and neutralization technologies that can be used by dismounted forces as well as ground and air platforms to detect, identify and mitigate the effects of landmines, improvised explosive devices, minefields, and other explosive hazards. This PE also conducts modeling and simulation activities to assess the effectiveness of detection and neutralization concepts. Project 608 (Countermines and Bar Dev) supports the maturation and demonstration of enabling component and subsystems for counter explosive hazards and countermines technologies in the areas of countermines and barrier development and Project 683 (Area Denial Sensors) funds efforts on area denial sensors.

Work in this PE is fully coordinated with PE 0602120A (Sensors and Electronic Survivability), PE 0602622A (Chemical, Smoke and Equipment Defeating Technology), PE 0602624A (Weapons and Munitions Technology), PE 0602712A (Countermines Systems), PE 0602784A (Military Engineering Technology), PE 0603004 (Weapons and Munitions Advances Technologies), PE 0603270 (Electronic Warfare Technology), and PE 0603710A (Night Vision Advanced Technology).

All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

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

Work in this PE is performed by the United States Army Futures Command.

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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	17.097	0.000	0.000	-	0.000
Current President's Budget	16.860	0.000	0.000	-	0.000
Total Adjustments	-0.237	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.237	-			

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 64C: *COUNTERMINE DEMONSTRATIONS (CA)*

Congressional Add: *Program Increase - Multi-Sensor Drone Swarms for Explosive Hazard Detection*

Congressional Add Subtotals for Project: 64C

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	6.000	-
	6.000	-
	6.000	-

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Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603606A / <i>Landmine Warfare and Barrier Advanced Technology</i>	Project (Number/Name) 608 / <i>Countermine & Bar Dev</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
608: <i>Countermine & Bar Dev</i>	-	10.860	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.860

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
 Program Element (PE) 0603118A Soldier Lethality Advanced Technology:
 * Project BC9 Adv Soldier Sensors/Displays AdvTech for Dismounts
 PE 0603462A Next Generation Combat Vehicle Advanced Technology:
 * Project BJ8 Detection of Explosive Hazards Advanced Technology

A. Mission Description and Budget Item Justification

This Project matures and demonstrates technologies for finding and neutralizing explosive hazards in varying vegetation, soil, and weather conditions both day and night. Activities include maturation and demonstration of modular, semi-autonomous, and autonomous air, ground, and Soldier borne technologies to enable standoff and close-in detection and neutralization of explosive threats. Efforts are supported by modeling and simulation assessments to define potential system effectiveness.

All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

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.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
Title: Autonomous Explosive Hazard Detection	10.860	-	-
Description: This effort demonstrates an integrated modular sensor and sensor data processing capability to enable remote and semi-autonomous detection of mines, other explosive hazards, and indicators of emplacement, such as command wires and initiation devices from a safe standoff distance using small unmanned ground and air platforms. This effort also matures and demonstrates explosive hazard (EH) detection technologies that can be adapted to address near-peer threats in multiple environments.			
Accomplishments/Planned Programs Subtotals	10.860	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

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D. Acquisition Strategy

N/A

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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
64C: <i>COUNTERMINE DEMONSTRATIONS (CA)</i>	-	6.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.000

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Countermine Advanced Technology and Demonstrations.

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

Work in this Project is performed by United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs (\$ in Millions)

<u>B. Accomplishments/Planned Programs (\$ in Millions)</u>	FY 2019	FY 2020
<i>Congressional Add:</i> Program Increase - Multi-Sensor Drone Swarms for Explosive Hazard Detection	6.000	-
<i>FY 2019 Accomplishments:</i> Program Increase - Multi-Sensor Drone Swarms for Explosive Hazard Detection		
Congressional Adds Subtotals	6.000	-

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A