Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army												Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603466A *I Air and Missile Defense Advanced Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	125.027	99.147	21.015	-	21.015	28.277	28.937	16.249	15.233	0.000	333.885
AD1: *High Energy Laser Tactical Vehicle Demo Adv Tech*	-	25.137	-	-	-	-	-	-	-	-	0.000	25.137
AE3: *Unconventional Countermeasures-Survivability ATech*	-	2.890	0.512	11.208	-	11.208	11.839	10.850	0.786	1.244	0.000	39.329
BN7: *Weapons Components Adv Technology (CA)*	-	97.000	88.000	-	-	-	-	-	-	-	0.000	185.000
CV6: *Optimized High Energy Laser Source Adv Tech*	-	-	7.112	6.743	-	6.743	9.727	10.049	8.664	7.058	0.000	49.353
DB3: *Radar Survivability through Dis Sensing Adv Tech*	-	-	3.523	3.064	-	3.064	6.711	8.038	6.799	6.931	0.000	35.066

A. Mission Description and Budget Item Justification

This Program Element (PE) matures demonstrates technology in support of Army Modernization Priority Air and Missile Defense by maturating, demonstrating and conducting system level experimentation for the development of advanced air defense technologies that reduce the cost curve of missile defense, restore overmatch, survive volley-fire attacks, and operate within sophisticated Anti-Access/Area Denial (A2/AD) and contested domains.

Research in this PE complements PE 0602150A (Air and Missile Defense Technology).

This PE is directly aligned to the Air & Missile Defense (AMD) Army Modernization Priority.

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

Research is performed by the United States (U.S.) Army Futures Command (AFC), the United States Army Space and Missile Defense Command/Army Forces Strategic Command (SMDC/ARSTRAT), and the Engineer Research and Development Center (ERDC), and the United States Army Rapid Capabilities and Critical Technologies Office (RCCTO).

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603466A *I Air and Missile Defense Advanced Technology*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	145.826	11.147	9.715	-	9.715
Current President's Budget	125.027	99.147	21.015	-	21.015
Total Adjustments	-20.799	88.000	11.300	-	11.300
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	88.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-20.799	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	11.300	-	11.300

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: BN7: *Weapons Components Adv Technology (CA)*		
Congressional Add: *Program Increase - HEL for All-Terrain Vehicles*	5.000	12.000
Congressional Add: *Program Increase - Thermal Management System for High Energy Laser*	12.000	-
Congressional Add: *Program Increase - HEL Risk Reduction*	46.000	-
Congressional Add: *Armored Combat Vehicle HEL Integration*	11.000	-
Congressional Add: *Missile Mentor*	15.000	-
Congressional Add: *Program Increase - Silicon Carbide Electronics*	8.000	8.000
Congressional Add: *Program Increase: Palletized Counter sUAS HEL Weapon System*	-	20.000
Congressional Add: *Program Increase: Weapons Components Advance Technology*	-	20.000
Congressional Add: *Program Increase - MISSILE AI FORCE APPLICATION SYNCHRONIZATION TESTBED*	-	8.000
Congressional Add: *Program Increase - MOBILE FORCE PROTECTION*	-	20.000
Congressional Add Subtotals for Project: BN7	97.000	88.000
Congressional Add Totals for all Projects	97.000	88.000

Change Summary Explanation

Increase in funding to initiate the Assured Protection of Layered Logistics Operations (APoLLO) effort which will mature and demonstrate unconventional countermeasure solutions for joint logistics assets.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603466A / *Air and Missile Defense Advanced Technology*	Project (Number/Name) AD1 / *High Energy Laser Tactical Vehicle Demo Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
AD1: *High Energy Laser Tactical Vehicle Demo Adv Tech*	-	25.137	-	-	-	-	-	-	-	-	0.000	25.137
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates a greater than 100 kW-class mobile high energy laser (HEL) weapon system on a tactical platform to protect fixed and semi-fixed sites from rocket, artillery and mortar (RAM), unmanned aerial system (UAS), and advanced air defense threats. The major effort under this Project is the phased approach for mobile high power solid state laser (SSL) technology demonstrations that are traceable to the form, fit, and function requirements for a HEL weapon. This effort utilizes open systems architecture to ensure growth, interoperability, and opportunity for technology insertions for maturation of laser, beam control, sensor/radar, integration of power and thermal management subsystems, as well as Battle Management Command, Control, and Computers (BMC3).

Research in this Project complements Program Element (PE) 0602150A (Air and Missile Defense Technology) / Project AC9 (High Energy Laser Tactical Vehicle Demonstrator Te).

The cited research is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, and the Army Modernization Strategy, and supports the Army's future capability opportunities for leap-ahead technology for directed energy.

Research is performed by the United States (US) Army Rapid Capabilities and Critical Technologies Office (RCCTO).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: High Energy Laser Tactical Vehicle Demonstrator (HEL TVD) Advanced Technology	25.137	-	-
Description: This effort integrates and demonstrates HEL technologies on an Army tactical platform for transition to the future Indirect Fire Protection Capability Increment 2-Intercept Program of Record. Effort includes integrating technologies developed under PE 0602307A/AC9 into HEL TVD and demonstrating the system against an array of RAM and UAS targets. Technology and knowledge gained from demonstration will be used to inform prototyping decisions by Army Rapid Capabilities and Critical Technologies Office and future material development decisions by Program Executive Office Missiles and Space.			
Accomplishments/Planned Programs Subtotals	25.137	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** AD1 / *High Energy Laser Tactical Vehicle Demo Adv Tech*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army										Date: March 2023		
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603466A / *Air and Missile Defense Advanced Technology*				Project (Number/Name) AE3 / *Unconventional Countermeasures-Survivability ATech*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
AE3: *Unconventional Countermeasures-Survivability ATech*	-	2.890	0.512	11.208	-	11.208	11.839	10.850	0.786	1.244	0.000	39.329
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates technologies to increase survivability of personnel and critical assets using integrated unconventional countermeasures. These countermeasures include tone down concepts for signature management using novel materials, rapidly deployable, low-cost, multisprectral survivability enhancement technologies as well as intuitive decision support technologies to select and assess non-kinetic protective measures.

Work in this Project complements Program Element (PE) 0602150A (Air and Missile Defense Technology) / Project AE2 (Unconventional Countermeasures-Survivability Tech).

The work cited 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 conducted by the United States Army Engineer Research and Development Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Development of Unconventional Countermeasures for Enhanced Survivability (DeUCES) Demonstrations ***Description:*** This effort matures and demonstrates countermeasures to detect and defeat near-peer advanced weapons through computational simulations and physical countermeasures and enhanced tonedown measures.	2.650	-	-
Title: Applications of Environmentally-Inspired Unconventional Countermeasures ***Description:*** This effort matures and demonstrates rapidly-deployable, eco-friendly materials with spectral signatures that alter or obscure underlying target spectral signatures.	0.240	-	-
Title: Advanced Integrated Unconventional Countermeasures Applications Demonstrations ***Description:*** This effort demonstrates methods and materials to defeat peer advanced reconnaissance, surveillance, targeting methods through advancements in material science and computational prototyping to reduce targetable signatures and confuse targeting systems. ***FY 2023 Plans:***	-	0.512	1.164

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** AE3 / *Unconventional Countermeasures-Survivability ATech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Demonstrate a system incorporating organic materials for targeting hyperspectral and multispectral sensor bands. And demonstrate advanced thermal generation technologies for lightweight structural panels for integration into survivability enhancement systems. ***FY 2024 Plans:*** Will demonstrate a prototype system and corresponding auxiliary countermeasures with design influences produced by computational tools developed for signature management applications. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase reflects investments required to demonstrate developments and capabilities available through the prototype system.			
Title: Assured Protection of Layered Logistics Operations (APoLLO) ***Description:*** This effort matures and demonstrates CREED Kits and other unconventional countermeasures to protect joint logistical assets against emerging and dynamic threats to include expansion of core CREED capabilities to other families of critical assets. ***FY 2024 Plans:*** Will mature and demonstrate passive unconventional countermeasures systems tailored for fixed logistics assets. Will mature active countermeasures with specific focus on low-cost logistics protection of hard-to-move unique system and subsystems. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase reflects initiation of new task to mature and demonstrate unconventional countermeasure solutions for joint logistics assets.	-	-	10.044
Accomplishments/Planned Programs Subtotals	2.890	0.512	11.208

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603466A / *Air and Missile Defense Advanced Technology*	Project (Number/Name) BN7 / *Weapons Components Adv Technology (CA)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BN7: *Weapons Components Adv Technology (CA)*	-	97.000	88.000	-	-	-	-	-	-	-	0.000	185.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Congressional Interest Item funding provided for Weapons Components Advanced Technology.

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for Weapons Components Advanced Technology.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Program Increase - HEL for All-Terrain Vehicles	5.000	12.000
FY 2022 Accomplishments: Program increase supporting advanced technology development of high energy lasers for all-terrain vehicles. Furthers efforts executed under FY 2021 $20M congressional add Program Increase. This project will perform research and development on coherently combined phased array high energy laser advanced weapons technology to support the mobile Counter-small Unmanned Aircraft Systems (C-sUAS) efforts at Army Brigade and below operations. The effort matures current Joint C-sUAS Office supported efforts and will perform graded field demonstrations against relevant targets. Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.		
FY 2023 Plans: Program increase supporting advanced technology development of high energy lasers for all-terrain vehicles. Furthers efforts executed under FY 2022 congressional add Program Increase.		

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** BN7 / *Weapons Components Adv Technology (CA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
This effort provides research and development on advanced weapons technology leading to a high energy laser system for vehicles that support Army Brigade and below operations. It further enables soldiers to have a Counter- small Unmanned Air System (C-UAS) weapon system at the small unit level and requirements put forth by the Joint Counter-UAS Office. The effort builds upon the advanced laser technologies being developed for counter rockets, artillery, and mortars (C-RAM) and to be integrated on larger vehicles (10-ton FMTV). These integrated systems find their best use in all theaters for C-UAS defense applications, a critical deficiency. Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.		
Congressional Add: Program Increase - Thermal Management System for High Energy Laser ***FY 2022 Accomplishments:*** Congressional Interest Item funding provided for Thermal Management System for 10KW to 50KW Lasers Program increase supporting advanced technology development of thermal management systems for high energy lasers. This project will improve laser diode fiber amplifier cooling with smaller, lighter and more energy efficient thermal management technology and demonstrate that capability in a relevant environment. This effort continues work in phase change materials and vapor compression technologies to reducing the size, weight, power, and cost of direct energy weapons technologies. Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.	12.000	-
Congressional Add: Program Increase - HEL Risk Reduction ***FY 2022 Accomplishments:*** Congressional Interest Item funding provided for IFPC HEL Risk Reduction Program increase supporting advanced technology development of High Energy Laser Risk Reduction. The Indirect Fire Protection Capability-High Energy Laser (IFPC-HEL) pre-prototype demonstrator proves out a 300 kW HEL system in a laboratory by the end of FY 2022. This effort supports the post laboratory demonstration system integration of all subsystems into an enclosure and onto the platform for range / field demonstrations to enable final verification of the system against its defined threat portfolio and potential path forward for follow-on prototype systems to be delivered to the warfighter as residual combat capability. Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.	46.000	-
Congressional Add: Armored Combat Vehicle HEL Integration	11.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** BN7 / *Weapons Components Adv Technology (CA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
FY 2022 Accomplishments: Program increase supporting advanced technology development of armored combat vehicle high energy laser integration. This project will provide a system representative high energy laser asset to independently characterize and score Direct Energy systems to validate weapon effectiveness as part of developmental and operational testing, as well as Outside Continental United States (OCONUS) operational assessments. This effort will inform engagement tactics against threat representative Unmanned Aircraft Systems (UAS) and UAS swarms. Enables Rapid Capabilities and Critical Technologies Office (RCCTO) test events for counter UAS activities. Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.		
Congressional Add: Missile Mentor ***FY 2022 Accomplishments:*** Congressional Interest Item funding provided for Missile Mentor	15.000	-
Congressional Add: Program Increase - Silicon Carbide Electronics ***FY 2022 Accomplishments:*** Congressional Interest Item funding provided for Silicon Carbide Electronics ***FY 2023 Plans:*** Congressional Interest Item funding provided for Silicon Carbide Electronics	8.000	8.000
Congressional Add: Program Increase: Palletized Counter sUAS HEL Weapon System ***FY 2023 Plans:*** This effort will integrate Palletized High Energy Laser (P-HEL) in a tactically relevant, rugged, transportable and fieldable fixed and semi-fixed command and control configuration. This integrated P-HEL will provide the DoD with mature production prototype 20-kilowatt (kW) Counter- small Unmanned Air Systems (C-sUAS) to provide a solution for the detection, identification, management and mitigation of sUAS threats. This transition positions Army Rapid Capabilities and Critical Technologies Office (RCCTO) to deliver the P-HEL system with residual combat capabilities in support of Joint Warfighting and Interagency Organizations in collaboration with the Joint Counter sUAS Organization (JCO). Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.	-	20.000
Congressional Add: Program Increase: Weapons Components Advance Technology ***FY 2023 Plans:*** This effort provides for the integration of a 300- kW class High Energy Laser Weapon System and all subsystems to be transported and prepped for system level testing at White Sands Missile Range (WSMR) in support of Army Integrated Air and Missile Defense. This efforts completes integration of the laser	-	20.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** BN7 / *Weapons Components Adv Technology (CA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
and all subsystems into a container on an Army tactical truck complete with beam director assembly and battery packs - critical for WSMR testing. Work performed by the Rapid Capabilities and Critical Technologies Office (RCCTO), in Huntsville, Alabama.		
Congressional Add: Program Increase - MISSILE AI FORCE APPLICATION SYNCHRONIZATION TESTBED ***FY 2023 Plans:*** Congressional Interest Item funding provided for MISSILE AI FORCE APPLICATION SYNCHRONIZATION TESTBED	-	8.000
Congressional Add: Program Increase - MOBILE FORCE PROTECTION ***FY 2023 Plans:*** Congressional Interest Item funding provided for MOBILE FORCE PROTECTION	-	20.000
Congressional Adds Subtotals	97.000	88.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603466A / *Air and Missile Defense Advanced Technology*	Project (Number/Name) CV6 / *Optimized High Energy Laser Source Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CV6: *Optimized High Energy Laser Source Adv Tech*	-	-	7.112	6.743	-	6.743	9.727	10.049	8.664	7.058	0.000	49.353
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates Optimized High Energy Laser Source advanced technology establishing a more affordable laser source for application in High Energy Laser weapon systems. This Project will deliver a lower cost laser weapon source and leverages prior laser source development work to ruggedize and integrate for transition into the Maneuver-Short Range Air Defense Program of Record.

Research in this Project complements other Army Directed Energy efforts conducted under Program Element (PE) 0602150A (Air and Missile Defense Technology) and PE 0603466A (Air and Missile Defense Advanced Technology).

The cited research is consistent with the Army's modernization programs, the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and supports the Army's future capability opportunities for leap-ahead technology for Directed Energy.

Research is performed by the United States Army Space and Missile Defense Command - Technical Center (USASMDC-TC) in coordination with RCCTO.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Optimized High Energy Laser Source Advanced Technology	-	6.852	6.743
Description: This effort matures and demonstrates Optimized High Energy Laser Source Advanced Technology to demonstrate a more affordable laser source for application in High Energy Laser weapon systems. This effort will provide a low-cost, rugged and compact laser source. Delivering an affordable direct replacement 50 kW-class laser subsystem with 50% efficiency and 80% fractional Power in the Bucket enabling improvements in efficiency and Size, Weight, and Power laser source resulting in a smaller footprint while reducing logistics requirements.			
FY 2023 Plans: This effort will design and integrate a 50 kW class semiconductor high energy laser subsystem module by leveraging commercially available single mode laser diodes. This effort builds on current industry capabilities that utilize spectral beam combining of multimode diode lasers for manufacturing capabilities. Current research efforts in the Army that have proven this concept is feasible will be leveraged in this effort.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** CV6 / *Optimized High Energy Laser Source Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
This effort will continue improvement and complete the integration of the 50 kW-class semiconductor high energy laser subsystem module with a focus on validating performance of components and subsystems as they are integrated. Initiate plans to integrate the 50 kW-class laser module into a testbed for field demonstration the following year. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease in funding reflects the planned lifecycle of this effort.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	0.260	-
Accomplishments/Planned Programs Subtotals	-	7.112	6.743

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603466A / *Air and Missile Defense Advanced Technology*	Project (Number/Name) DB3 / *Radar Survivability through Dis Sensing Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
DB3: *Radar Survivability through Dis Sensing Adv Tech*	-	-	3.523	3.064	-	3.064	6.711	8.038	6.799	6.931	0.000	35.066
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures, and demonstrates critical radar capability enhancements to defeat advanced Air and Missile threats and protect Army maneuver forces and critical assets. Radar enhancements are required for advanced Electronic Protection (EP) techniques against advanced jammers, electronic Combat Identification (CID), and resource optimization across the threat spectrum while retaining 360 degree coverage capability. Technology maturation in the project includes providing capabilities for: dispersed multi-static operation, classifying/tracking emerging threats and high volume threats; adaptive digital beam forming to enable resource efficiency, performance in a dynamic clutter environment and enhanced survivability in a contested battlespace; and multi-modal tracking and additional discrimination models to support diverse and emerging threats, such as swarms and guided munitions. Multiple soldier touchpoints and demonstrations of developed technology to autonomously synchronize multiple radars across a distributed battlefield in the presence of countermeasures and the denial of Global Positioning System (GPS) will be performed in lab and field environments.

This research is coordinated with Army Program Element (PE) 0602141A (Lethality Technology) / Project CG4 (Advanced Radar Concepts and Technologies); PE 0602148A (Future Vertical Lift Technology) / Project CC3 (FVL Radar Technologies); PE 0602150A (Air and Missile Defense Technology) / Project AD5 (Next Generation Fires Radar Technology); and PE 0601102A (Defense Research Sciences) / Project AA8 (Sensing and Electromagnetics).

This Research complements Program Element (PE) 0602141A (Lethality Technology) / Project CJ7 (Future Air Defense Missile Enabling Tech) and PE 0602150A (Air and Missile Defense Technology) / Project DA9 (Radar Survivability through Dis Sensing Tech).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Radar Survivability through Dis Sensing (RSDS) Adv Tech	-	3.394	3.064
Description: Matures, and demonstrates critical radar capability enhancements to defeat advanced Air and Missile threats and protect Army maneuver forces and critical assets.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603466A / *Air and Missile Defense Advanced Technology*	**Project (Number/Name)** DB3 / *Radar Survivability through Dis Sensing Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Will mature RSDS software and evaluate utilizing high fidelity simulations representative of current and future Army Air Defense radars. Will begin to generate test concepts and demonstration plans for multi-static radar operations. ***FY 2024 Plans:*** Will select and execute RSDS technology demonstrations of critical capabilities to generate performance metrics. Initial tactical M&S and live demonstrations in the field will incorporate soldier touch points to compare multi and mono-static operations. User feedback early in the technology development process will ensure developed technology is interoperable with Air Defense radars through software built to avoid costly hardware modifications. Utilize the low-cost distributed sensing multi-static Radar testbed S&T development to assess performance and inform future requirements. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.129	-
Accomplishments/Planned Programs Subtotals	-	3.523	3.064

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A