Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603042A *I C3I Advanced Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	-	3.151	-	3.151	-	-	-	-	-	-
CN3: *Network Enabling University Adv Development*	-	-	-	3.151	-	3.151	-	-	-	-	-	-

Note

This is a new start in FY 2022.

In Fiscal Year (FY) 2022, this Program Element is a New Start.

In FY 2022, funding is realigned from:

Program Element 0602145A (Next Generation Combat Vehicle Technology)
Program Element 0602787A (Medical Technology)
Program Element 0603466A (Air and Missile Defense Advanced Technology)

A. Mission Description and Budget Item Justification

This PE matures, demonstrates, optimizes, and validates Network Command, Control, Communications, and Intelligence (C3I) technologies through the integration of future equipment and systems that improve overmatch and meet mission needs in the future operating environments.
This PE provides mid-to-long term tactical C3I capabilities (e.g. networking, cyber, electronic warfare, Positioning, Navigation, and Timing (PNT), space, persistent surveillance) based upon promising technologies that address emerging and future threats, and includes research critical and unique to the Army and DoD.
Efforts focus on advanced maturation and demonstration of materials, technologies, methodologies and systems that span the range from electronics, protective technologies, electronic warfare, and mission support capabilities such as situational awareness. These efforts directly inform and transition key capabilities to Army programs of record that support the Army modernization priorities.

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 the United States (US) Army Futures Command (AFC).

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*			R-1 Program Element (Number/Name) PE 0603042A *I C3I Advanced Technology*		
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	3.151	-	3.151
Total Adjustments	0.000	0.000	3.151	-	3.151
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	3.151	-	3.151

Change Summary Explanation

New Program Element in Fiscal Year (FY) 2022 established to for enabling science and technology efforts that support advanced network research.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603042A / *C3I Advanced Technology*	Project (Number/Name) CN3 / *Network Enabling University Adv Development*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CN3: *Network Enabling University Adv Development*	-	-	-	3.151	-	3.151	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

In Fiscal Year (FY) 2022, this is a New Start.

A. Mission Description and Budget Item Justification

This project matures and demonstrates advanced Network Command, Control, Communications, and Intelligence (C3I) technologies into future equipment and systems.

This effort accelerates advanced technologies originating from extramural research inform academia, will enable intelligent networks, self-sensing/self-healing network, network security, advanced teaming and operations in a Global Positioning System (GPS) degraded or denied environment. This effort accelerates the Army modernization in next generation Network and Assured Positioning, Navigation, and Timing (APNT) systems. Work in this project will lead to emerging technologies in areas of strategic importance to the Army in communications and networking, by engaging competitively selected Universities.

Work in this Project complements and transitions from PE 0602182 C3I Applied Research.

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 the United States Army Futures Command.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Advanced Intelligent, Secure and Self-Sensing/Self-Healing Networks	-	-	0.400
Description: Mature and integrate advanced intelligent network solutions with autonomous or self-sensing intelligence to deny corruption, and/or attacks and to execute operational missions securely and reliably. ***FY 2022 Plans:*** Will mature, demonstrate and integrate advanced capabilities in artificial intelligence and machine learning (AI/ML), predictive analytics, cyber, intelligent data integration, edge computer processing platforms, edge sensing systems, space or persistent surveillance applications and other technologies; optimize and demonstrate distributed learning under privacy and resource constraints and their communication between computing nodes and edge computing AI/ML solutions for network-driven			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603042A / *C3I Advanced Technology*	**Project (Number/Name)** CN3 / *Network Enabling University Adv Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
intelligence; demonstrate intelligent multi-modal communications with improved reliability, efficiency, localization and effectiveness; and integrate senor technologies (biometric and biosensor solutions) for intelligent network credentialing and access. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** This effort is a Fiscal Year (FY) 2022 New Start.			
Title: Advanced Real-Time Tactical Networks ***Description:*** Develop tactical network technology platforms consisting of a fleet of ground and air vehicles that will perform an autonomous reconnaissance mission in a relevant environment. ***FY 2022 Plans:*** Will develop, demonstrate and integrate Artificial Intelligence/Machine Learning Autonomy-related algorithms with improved holistic network functionalities to support advanced navigation/routing and autonomous reconnaissance mission. Will use shared perception and situational awareness for collaborative Ground and Air autonomous systems, and advanced teaming operations in uncertain environments and challenging situations; and integrate mature technologies with/to experimental Ground and Air platforms for accelerated development and prototyping. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** This effort is a Fiscal Year (FY) 2022 New Start.	-	-	1.300
Title: Advanced Sensors and Non-GPS PNT Systems ***Description:*** Develop advanced sensors with enhanced signal processing software/algorithms to improve assurance against both electronic and kinetic attacks relative to GPS, and that can provide matured PNT technology in disrupted, degraded or denied GPS environments. ***FY 2022 Plans:*** Will design, fabricate, and integrate GPS signal integrity monitoring sensors and reporting systems to enhance Soldier awareness in disrupted, degraded or denied GPS environments; and develop, mature, demonstrate, and integrate technologies involving atomic timing modules, advanced vision, radar, or other Global Navigation Satellite System (GNSS)-independent PNT solutions that are computationally and physically lightweight. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** This effort is a Fiscal Year (FY) 2022 New Start.	-	-	1.451
Accomplishments/Planned Programs Subtotals	-	-	3.151

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603042A / *C3I Advanced Technology*	**Project (Number/Name)** CN3 / *Network Enabling University Adv Development*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A