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 0603043A *I Air Platform 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	-	-	-	0.754	-	0.754	-	-	-	-	-	-
CL4: *Air Platform Enabling University Adv Development*	-	-	-	0.754	-	0.754	-	-	-	-	-	-

Note

In Fiscal Year 2022, this Program Element (PE) is created to focus on longer-term, far-reaching advanced technology efforts in the Air portfolio.

A. Mission Description and Budget Item Justification

This PE undertakes advanced technology efforts that support and enable the overall Army Aviation portfolio in general, and the Army's modernization priority for future vertical lift (FVL). Vital and enduring research into advanced technologies is conducted pertinent to the air portfolio that supports mid-to-long term requirements in contested operational environments and technologies that have broad application to FVL modernization, as well as overall Army and specific DoD aviation needs.

Work in this PE contributes to the Army Science and Technology (S&T) air systems portfolio and is fully coordinated with efforts in PE 0602148A (Future Vertical Lift Technology), PE 0603465A (Future Vertical Lift Advanced Technology) and PE 0602183A (Air Platform Applied Research).

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

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

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	0.754	-	0.754
Total Adjustments	0.000	0.000	0.754	-	0.754
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.754	-	0.754

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 0603043A *I Air Platform Advanced Technology*

Change Summary Explanation

In FY2022, this is a new PE with one new Project.

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 0603043A / *Air Platform Advanced Technology*	Project (Number/Name) CL4 / *Air Platform 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
CL4: *Air Platform Enabling University Adv Development*	-	-	-	0.754	-	0.754	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

This project is a new start in FY 2022.

A. Mission Description and Budget Item Justification

This Project focuses on experimentation and demonstration of advanced technologies originating from extramural applied research in academia pertaining to navigation/routing, autonomous robotic vehicles, artificial intelligence and machine learning as applied to aerial mobility and maneuver, holistic survivability, teaming, integrated mission systems, air-launched effects, and other innovative air enabling applied research technologies, that will accelerate the Army modernization in next generation aerial vehicles. This Project will mature and integrate advanced efforts to focus more on mid to far-term Army modernization priorities while also maintaining delivery of near-term technologies fundamental to the modernization priorities. This effort conducts and demonstrates advanced technology efforts arising from academic research in all areas of strategic importance to Army Aviation in AI/ML, autonomous systems, Advanced Teaming, Survivability, air-launched effects/payloads, coordinated air-ground maneuvering, etc., by bringing competitively selected Universities with research and development teams into Technical Alliances. The project will continuously experiment with methods to identify, demonstrate and transition novel technology from entities that might not otherwise collaborate with the DoD, with the end goal of accelerating the adoption of cutting-edge applied research technology for the warfighter in the Army aviation portfolio.

Work in this Project supports the Army Modernization Priority Future Vertical Lift and the overall aviation portfolio.

The cited work is consistent with 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.

This work is done in coordination with and transitions to PE 0603465A (Future Vertical Lift Advanced Technology Development) and PE 0603119A (Ground Advanced Technology), and is also coordinated with its sister project in PE 0602148A (Future Vertical Lift Technology) and PE 0602183A (Air Platform Applied Research).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Advanced Teaming	-	-	0.333

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** CL4 / *Air Platform Enabling University Adv Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Demonstrate and integrate capabilities to self-organize and coordinate large teams of unmanned vehicles participating in long-term reconnaissance operation using distributed command/control architectures despite communication delays and/or failures and showcasing resilience to wide-area jamming. ***FY 2022 Plans:*** Will further mature and demonstrate decentralized self-organization AI/ML algorithms among large team of unmanned heterogeneous autonomous assets deployed inside contested environments that are robust to emerging threats, lost links, or change in mission priorities. Will integrate and provide decentralized interactions that will provide knowledge bases, reasoning, planning, sensing and control tools that reside inside the entire vehicle team and mobile computational resources. Will implement scalable approaches for perception to allow for rapid evaluation and recognition of previously detected landmarks ***FY 2021 to FY 2022 Increase/Decrease Statement:*** In FY22, funding for this new effort is realigned from various PE/Projects listed in the Note Section of this Project as part of the Program Evaluation Groups (PEG) efficiency drill.			
Title: Coordinated Air-Ground Vehicle Maneuvering ***Description:*** Demonstrate and integrate a technology prototype platform consisting of a fleet of ground and air vehicles that will perform an autonomous reconnaissance mission in a relevant environment. ***FY 2022 Plans:*** Will demonstrate level coordinated landing/take-off of unmanned aerial system from stationary platform near ground vehicle in simulations. Will further mature and deploy software for air-ground coordination software support autonomous reconnaissance. Will integrate and demonstrate coordination strategies for autonomous ground and air vehicles to perform tactical reconnaissance mission. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** In FY22, funding for this new effort is realigned from various PE/Projects listed in the Note Section of this Project as part of the Program Evaluation Groups (PEG) efficiency drill.	-	-	0.421
Accomplishments/Planned Programs Subtotals	-	-	0.754

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** CL4 / *Air Platform Enabling University Adv Development*

D. Acquisition Strategy

N/A