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 0603043A *I Air Platform 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	-	0.727	17.946	14.165	-	14.165	16.126	19.159	21.644	23.624	0.000	113.391
CL4: *Air Platform Enabling University Adv Development*	-	0.727	1.251	1.367	-	1.367	1.463	1.165	1.166	1.179	0.000	8.318
CV1: *Control & Autonomy for Tactical Superiority Adv*	-	-	1.140	1.254	-	1.254	1.254	1.151	1.152	1.164	0.000	7.115
CV2: *Structures Platform Int Resilience & Efficiency*	-	-	3.124	3.358	-	3.358	5.138	6.549	5.148	5.204	0.000	28.521
CX1: *Advanced Rotors Advanced Tech*	-	-	2.618	2.657	-	2.657	2.684	2.687	2.689	2.718	0.000	16.053
CX2: *Next Generation Aviation Transmission Adv Tech*	-	-	4.389	-	-	-	-	-	2.638	4.373	0.000	11.400
DC3: *HPC For Army Aviation Concepts*	-	-	5.424	5.529	-	5.529	5.587	7.607	8.851	8.986	0.000	41.984

Note

In FY 24, funding is realigned from Project CX2 (Next Generation Aviation Transmission Adv Tech) to fund higher priority projects in the Army.

A. Mission Description and Budget Item Justification

This Program Element (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 Department of Defense (DoD) aviation needs.

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

Research in this PE is performed by the United States Army Futures Command (AFC) and the Engineer Research and Development Center (ERDC).

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 0603043A *I Air Platform 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	0.754	17.946	18.557	-	18.557
Current President's Budget	0.727	17.946	14.165	-	14.165
Total Adjustments	-0.027	0.000	-4.392	-	-4.392
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.027	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-4.392	-	-4.392

Change Summary Explanation

In FY24, funding is decreased to fund higher priority efforts in the Army.

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

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
CL4: *Air Platform Enabling University Adv Development*	-	0.727	1.251	1.367	-	1.367	1.463	1.165	1.166	1.179	0.000	8.318
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 artificial intelligence / machine learning (AI/ML), autonomous teaming systems, survivability, aeromechanics, advanced vertical take-off and landing (VTOL) design & concepts, flight dynamics, vibration & noise control, propulsion, human factor engineering and structures and materials, 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 Department of Defense (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 complements Program Element (PE) 0603465A (Future Vertical Lift Advanced Technology), PE 0603119A (Ground Advanced Technology), PE 0602148A (Future Vertical Lift Technology) and PE 0602183A (Air Platform Applied Research).

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 performed by the United States Army Futures Command.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Advanced Teaming ***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.	0.320	-	-
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.	0.407	-	-

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Vertical Lift Advanced Technologies ***Description:*** Conduct advanced development within academia to mature and integrate Vertical Lift research of promising and emerging technologies. ***FY 2023 Plans:*** Will mature and integrate emerging technologies in areas of autonomous teaming systems, survivability, aeromechanics, advanced VTOL design & concepts, flight dynamics, vibration & noise control, propulsion, human factor engineering and structures & materials. ***FY 2024 Plans:*** Will continue to mature and integrate rotorcraft emerging technologies through autonomous teaming systems, aeromechanics, advanced VTOL design & concepts, flight dynamics models to extend reach, and agility. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.	-	1.205	1.367
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	-	0.046	-
Accomplishments/Planned Programs Subtotals	0.727	1.251	1.367

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 0603043A / *Air Platform Advanced Technology*	Project (Number/Name) CV1 / *Control & Autonomy for Tactical Superiority Adv*	

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
CV1: *Control & Autonomy for Tactical Superiority Adv*	-	-	1.140	1.254	-	1.254	1.254	1.151	1.152	1.164	0.000	7.115
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project will deliver advanced flight controls, autonomy technologies, and new handling qualities criteria are implemented and tested in a realistic environment to demonstrate their functionality and increase their technical readiness level (TRL). This Project also delivers demonstrated and matured flight controls and autonomy technologies at TRL 6 to transition partners.

Research in this Project is fully coordinated with Program Element (PE) 0602183A (Air Platform Applied Technology).

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Adaptive Tactical Autonomy and Control (ATAC) Technology Demonstration	-	1.098	1.254
Description: Mature, integrate, and demonstrate advanced flight control technologies and state-of-the-art autonomy algorithms that provide Future Vertical Lift (FVL) aircraft with enhanced maneuverability and agility, reduced cognitive workload, improved survivability through damage tolerance, and the ability to operate on an autonomy spectrum from piloted to fully autonomous and exploit degraded environments as a force multiplier.			
FY 2023 Plans: Demonstrate advanced high-speed flight control algorithms within the flight-envelop-limits of Army flying laboratories. Demonstrate control strategies for seamless hand-off from pilot to autonomous system, and back, for optionally piloted operations. Collaborate with the original equipment manufacturers (OEM's) to mature and flight test new high-speed handling qualities criteria and Mission Task Elements (MTE).			
FY 2024 Plans: Will integrate and demonstrate autonomous obstacle field navigation enhancements, including Risk-Aware Path Planner (RAPP), on Army flying laboratories. Will integrate and demonstrate control laws for active sensing to improve the effectiveness of sensors. Will integrate and demonstrate advanced concepts for ensuring pilot awareness of autonomous system's intent.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** CV1 / *Control & Autonomy for Tactical Superiority Adv*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding increase in FY24 supports the implementation and flight testing of metrics and performance requirements used to develop autonomy algorithms.			
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	-	0.042	-
Accomplishments/Planned Programs Subtotals	-	1.140	1.254

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 0603043A / *Air Platform Advanced Technology*	Project (Number/Name) CV2 / *Structures Platform Int Resilience & Efficiency*	

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
CV2: *Structures Platform Int Resilience & Efficiency*	-	-	3.124	3.358	-	3.358	5.138	6.549	5.148	5.204	0.000	28.521
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project will ensure a continuous stream of transition-ready critical structures advanced technologies for improvement of performance (via weight efficiency and multifunctionality for parasitic weight avoidance) and resilience (survivability, sustainment, and operational availability).

Research in this Project is fully coordinated with Program element (PE) 0602183A (Air Platform Applied Technology).

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Adaptive Resilient Engineered Structures (ARES)	-	3.010	3.358
Description: Mature, integrate, and demonstrate advanced structures technologies providing performance, survivability, and sustainment benefits with broad applicability across platform scale and role, enabling mission success for manned/unmanned Future Vertical Lift (FVL) platforms in the contested environment of multi-domain operations.			
FY 2023 Plans: Further mature, test, and integrate advanced structures technologies, quantifying their contribution to improved efficiency, performance, survivability, and sustainment (reliability and availability). Leverage trade study results to design an integrated demonstration exploiting the synergy of technologies including weight-saving, fatigue-tolerant, affordable, multifunctional, and damage-tolerant configurations for primary and secondary structure.			
FY 2024 Plans: Will further mature, test, and integrate advanced structures technologies, quantifying their contribution to improved efficiency, performance, survivability, and sustainment (reliability and availability). Will use building block testing and analysis to prepare for an integrated demonstration exploiting the synergy of technologies including weight-saving, fatigue-tolerant, affordable, multifunctional, and damage-tolerant configurations for primary and secondary structure.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** CV2 / *Structures Platform Int Resilience & Efficiency*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding increase in FY24 supports increased building block testing to mitigate risk in the upcoming integrated demonstration.			
Title: SBIR/STTR Transfer	-	0.114	-
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			
Accomplishments/Planned Programs Subtotals	-	3.124	3.358

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 0603043A / *Air Platform Advanced Technology*	Project (Number/Name) CX1 / *Advanced Rotors Advanced 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
CX1: *Advanced Rotors Advanced Tech*	-	-	2.618	2.657	-	2.657	2.684	2.687	2.689	2.718	0.000	16.053
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project investigates Future Vertical Lift (FVL) and other Army and Department of Defense (DoD) advanced drive train technologies that increase performance and double current drivetrain life cycles while improving their reliability and maintainability.

Research in this Project is fully coordinated with PE 0602183A (Air Platform Applied Technology).

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: High Speed Highly Efficient Rotors	-	2.522	-
Description: This effort demonstrates full scale, integrated rotor system technologies through the assessment of alternative designs aimed to satisfy future capability needs for aviation and FVL increased system durability, efficiency, speed, range, and payload. Potential technologies include: integrated high speed, low drag rotor technologies for high speed configurations; interactional aerodynamics tailoring between rotor and body & auxiliary lift/ propulsors; light weight, low volume, efficient and high authority electro-mechanical actuators (EMAs); reliable and robust actuators/hubs/controls for Independent Blade Control (IBC)/ swashplateless rotors; active/passive flow control; and automated track and balance.			
FY 2023 Plans: Complete fabrication of demonstration hardware. Conduct rotor blade and hub structural testing. Conduct full scale whirl test planning.			
FY 2023 to FY 2024 Increase/Decrease Statement: In FY23, this effort ends and funding is realigned to Lightweight Durable Rotor Technologies within this project.			
Title: Lightweight Durable Rotor Technologies	-	-	2.657
Description: This effort matures and demonstrates full scale, integrated durable rotor system technologies to improve rotor blade service lives and reduce maintenance costs aimed to satisfy future capability needs for aviation and FVL increased system			

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** CX1 / *Advanced Rotors Advanced Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
durability, efficiency, speed, range, and payload. Potential technologies include lightweight and highly durable blade erosion protection, low power and more reliable blade deicing capability, more reliable rotor system sensors/instrumentation, reliable and durable rotor actuation, low drag/low part count hubs, and improved blade repair methodologies. ***FY 2024 Plans:*** Will test low drag, low part count rotor hub. Will screen initial durable rotor technologies as part of program kickoff planning. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This effort begins in FY24 with funding realigned from High Speed Highly Efficient Rotors within this project.			
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	-	0.096	-
Accomplishments/Planned Programs Subtotals	-	2.618	2.657

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 0603043A / *Air Platform Advanced Technology*	Project (Number/Name) CX2 / *Next Generation Aviation Transmission 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
CX2: *Next Generation Aviation Transmission Adv Tech*	-	-	4.389	-	-	-	-	-	2.638	4.373	0.000	11.400
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 24, funding is realigned from Project CX2 (Next Generation Aviation Transmission Adv Tech) to fund higher priority projects in the Army.

A. Mission Description and Budget Item Justification

This Project develops and ground demonstrates variable-speed advanced transmission technologies that can be matured and integrated into the development of Future Vertical Lift (FVL) platforms and other Army and Department of Defense (DoD) aviation systems.

Research in this Project is fully coordinated with PE 0602183A (Air Platform Applied Technology).

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: High Reduction Ratio Transmission (HRT) ***Description:*** This effort will mature and demonstrate the technologies necessary for development, design, fabrication, and testing of a high reduction-ratio transmission in two stages or less (60:1 reduction ratio) with high efficiency and improved reliability against corrosion and seal leakage. Technology demonstrations from this effort will be applicable to FVL platforms. ***FY 2023 Plans:*** Perform component level fabrication, assembly, and risk reduction testing of transmission technologies that produces a 60:1 reduction ratio two-stage gearbox design for significant weight and volume reduction enabling extended range and component life while improving reliability and reducing life-cycle costs for manned and unmanned applications. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This effort ends in FY23.	-	4.229	-
Title: SBIR/STTR Transfer ***FY 2023 Plans:***	-	0.160	-

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** CX2 / *Next Generation Aviation Transmission Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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			
Accomplishments/Planned Programs Subtotals	-	4.389	-

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 0603043A / *Air Platform Advanced Technology*	Project (Number/Name) DC3 / *HPC For Army Aviation Concepts*	

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
DC3: *HPC For Army Aviation Concepts*	-	-	5.424	5.529	-	5.529	5.587	7.607	8.851	8.986	0.000	41.984
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates the use of high-fidelity computational fluid dynamics for Future Vertical Lift (FVL) platforms through the utilization of Department of Defense (DoD) High- Performance Computing (HPC) and software tools for cutting-edge modeling and simulation, as well as adding software capabilities for workflow automation and design space exploration. Efforts in this Project are also applicable to the family of FVL and Future Tactical Unmanned Aircraft System (FTUAS) platforms.

Work in this Project complements PE 0602183A (Air Platform Applied Research).

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

Work in this Project is performed by the United States Army Engineer Research and Development Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Engineered Resilient Systems (ERS) for Army Aviation	-	2.273	-
Description: This effort supports Future Vertical Lift by exploiting advancements in physics-based software tools to provide rapid engineering analysis of proposed rotorcraft platforms, providing high-fidelity computational modeling of candidate Future Attack Reconnaissance Aircraft (FARA) platforms during the FARA down-selection, increasing the speed of simulations by automating simulation setup and execution on DoD HPC systems, and maturing and demonstrating the use of advanced machine learning techniques for aviation datasets to inform both the development of FVL systems and current operations.			
FY 2023 Plans: Provide automated tools and plugins to evaluators to support FARA / Future Long-Range Assault Platforms (FLRAA) design evaluations. Expand computational modeling and optimization efforts to include additional domains, e.g., advanced rotor blade material and acoustic considerations.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** DC3 / *HPC For Army Aviation Concepts*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding decrease reflects planned lifecycle completion of this effort with transition of automation tools and plugins to be used for Future Vertical Lift system evaluations.			
Title: Advanced Computational Technologies for Army Aviation ***Description:*** This effort supports FVL by utilizing advanced computational techniques leveraging automated design processes to expand computational testbeds in support of testing and evaluation. Increase high accuracy physics in modeling and simulation to optimize platforms for all operational environments and mission scenarios. Provide multi-fidelity computational models of candidate FARA, FLRAA, and FTUAS platforms to support acquisition decision-makers. ***FY 2023 Plans:*** Couple engineering design evaluation with simulated mission scenario performance for mission-effectiveness design evaluation. Expand computational modeling capability to secret and/or above secured high-performance computing. Evaluate the usability of physics-informed machine learning methods and approaches to impact design and analysis of rotorcraft systems. ***FY 2024 Plans:*** Will mature the Decision Support Tool (DST) for executing combined engineering analysis and mission scenarios. Will demonstrate computational modeling and simulation capabilities for rotorcraft design and analysis on secret high-performance computing assets. Will expand computational modeling frameworks to include multi-fidelity computational models of candidate Future Vertical Lift (FVL) platforms. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase reflects investments required to mature and demonstrate computational tools for secured computing environments.	-	2.953	5.529
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	-	0.198	-
Accomplishments/Planned Programs Subtotals	-	5.424	5.529

C. Other Program Funding Summary ($ in Millions)

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 0603043A / *Air Platform Advanced Technology*	**Project (Number/Name)** DC3 / *HPC For Army Aviation Concepts*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A