Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603465A *I Future Vertical Lift Advanced Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	-	265.429	158.795	140.578	-	140.578	146.603	149.144	157.340	173.402	0.000	1,191.291
AI8: *Alternative Concept Engine Advanced Technology*	-	0.001	-	-	-	-	-	-	-	-	0.000	0.001
AJ9: *Integ Mission Equip for Vert Lift Systems Adv Tech*	-	24.278	17.095	2.396	-	2.396	-	-	-	-	0.000	43.769
AK3: *Aviation Survivability Advanced Technology*	-	3.953	-	-	-	-	-	-	-	-	0.000	3.953
AK5: *Multi-Role Small Guided Missile Advanced Tech*	-	10.980	11.795	6.105	-	6.105	-	-	-	-	0.000	28.880
AK7: *Adv Rotorcraft Armaments Protection Sys Adv Tech*	-	9.290	-	-	-	-	-	-	-	-	0.000	9.290
AK8: *Air Launched Effects Advanced Technology*	-	27.884	28.018	20.615	-	20.615	23.812	24.832	30.764	27.535	0.000	183.460
AL1: *Adv Teaming for Tactical Aviation Oper Adv Tech*	-	34.600	40.060	35.036	-	35.036	41.291	42.277	30.784	36.983	0.000	261.031
AL7: *Full Spectrum Targeting Advanced Technology*	-	8.419	8.955	8.651	-	8.651	8.379	6.861	6.466	6.070	0.000	53.801
AL9: *Holistic Sit Awareness and Dec Making Adv Tech*	-	28.291	21.128	15.474	-	15.474	18.228	18.606	23.226	23.458	0.000	148.411
BP8: *Future Vertical Lift Air Platform Adv Tech (CA)*	-	94.750	-	-	-	-	-	-	-	-	0.000	94.750
CA8: *Adv Rotocraft Armaments Protection Sys*	-	2.824	6.388	4.764	-	4.764	3.426	10.332	12.875	13.004	0.000	53.613
CC4: *FVL Radar Advanced Technologies*	-	3.220	4.403	-	-	-	2.389	3.895	4.422	4.947	0.000	23.276
CG1: *Holistic Team Survivability Adv Tech*	-	11.597	15.339	14.438	-	14.438	19.299	13.385	15.655	17.836	0.000	107.549
CH7: *Power & Thermal Management for FVL Adv Tech*	-	4.315	4.294	5.459	-	5.459	7.577	5.499	2.104	2.125	0.000	31.373

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army												Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603465A *I Future Vertical Lift Advanced Technology*							
CI8: *Adaptive Avionics Advanced Technologies*	-	-	-	10.046	-	10.046	17.929	16.940	19.150	19.342	0.000	83.407
CJ5: *Future Vertical Lift Medical Advanced Technology*	-	1.027	1.320	1.595	-	1.595	1.597	1.600	1.604	1.620	0.000	10.363
CK2: *High Speed Maneuverable Missile (HSMM) Adv Tech*	-	-	-	15.999	-	15.999	2.676	4.917	10.290	20.482	0.000	54.364

Note

In Fiscal Year (FY) 2025, project CI8 / Adaptive Avionics Advanced Technologies is a new effort realigned within PE 0603465A / Future Vertical Lift Advanced Technology. Funding realigned from project AJ9 /Integ Mission Equip for Vert Lift Systems Adv Tech.

In FY 2025, project CK2 / High Speed Maneuverable Missile (HSMM) Adv Tech is a new start within PE 0603465A / Future Vertical Lift Advanced Technology. This project continues and matures technologies developed in Budget Activity 2 Program Element 0602148 (Future Vertical Lift Tech) / Project CI5 (High Speed Maneuverable Missile Tech).

A. Mission Description and Budget Item Justification

This Program Element (PE) matures and demonstrates manned and unmanned air vehicle and mission system technologies as well as advanced teaming capabilities to enable Army Future Vertical Lift. Emphasis is on platform and mission system technologies to enhance manned and unmanned air vehicle combat and combat support operations for attack, reconnaissance, air assault, survivability, logistics, and command and control missions. Within this PE, aviation technologies are advanced and integrated into realistic and robust demonstrations.

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 0602183A (Air Platform Applied Research) and PE 0603043A (Air Platform Advanced Technology).

A portion of this PE is directly aligned to the Future Vertical Lift (FVL) Army Modernization Priority.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603465A *I Future Vertical Lift Advanced Technology*

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	272.551	158.795	165.415	-	165.415
Current President's Budget	265.429	158.795	140.578	-	140.578
Total Adjustments	-7.122	0.000	-24.837	-	-24.837
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.035	-			
• SBIR/STTR Transfer	-5.087	-			
• Adjustments to Budget Years	-	-	-24.837	-	-24.837

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: BP8: *Future Vertical Lift Air Platform Adv Tech (CA)*		
Congressional Add: *Program Increase - UH-60 Main Rotor Blade Modernization*	5.000	-
Congressional Add: *Program Increase - Data Refinement and Optimization for Aviation Sustainment*	4.500	-
Congressional Add: *Program Increase - Fleetspace Maintenance Tool*	5.250	-
Congressional Add: *Program Increase - Platform Digitization and Maintenance*	7.000	-
Congressional Add: *Program Increase - Stretch Broken Carbon Fiber*	10.000	-
Congressional Add: *Program Increase - UAS Fuel Systems Enhancements*	2.000	-
Congressional Add: *Program Increase - ADDITIVE MANUFACTURING CAPABILITY*	2.000	-
Congressional Add: *Program Increase - ADDITIVE MANUFACTURING FOR FVL*	10.000	-
Congressional Add: *Program Increase - AUTONOMOUS CONFIGURATION MANAGEMENT AND AVIATION RECORDS*	10.000	-
Congressional Add: *Program Increase - DLC COATINGS FOR RED PHOSPHOROUS OBSCURANTS*	3.000	-
Congressional Add: *Program Increase - FVL SURFACE TOLERANT ADHESIVES*	9.000	-
Congressional Add: *Program Increase - INDIVIDUAL BLADE AND HIGHER HARMONIC CONTROL*	22.000	-
Congressional Add: *Program Increase - Multi-Drone, Multi-Sensor ISR*	5.000	-
Congressional Add Subtotals for Project: BP8	94.750	-
Congressional Add Totals for all Projects	94.750	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*

Change Summary Explanation

Decrease in Fiscal Year (FY) 2025 funding from the previous PB to the current PB due to realignment of funding priorities to Program Element (PE) 0602183A / Air Platform Applied Research.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AI8 / *Alternative Concept Engine Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AI8: *Alternative Concept Engine Advanced Technology*	-	0.001	-	-	-	-	-	-	-	-	0.000	0.001
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides demonstration of adaptable, fuel efficient, and high power to weight engine technologies for potential application to Future Vertical Lift platforms. Research includes development of alternative, adaptive and smart engine technologies to provide improved performance, readiness and affordability across the engine operating envelope for increased operational capability.

Research in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology).

The cited research 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Improved Propulsion Technology Demonstration (IPTD)	0.001	-	-
Description: Effort will develop and execute an advanced engine integration, maintenance, and capability improvement strategy to produce key technology advancements on Future Long Range Assault Aircraft (FLRAA) engine systems, including the ACE engine technologies as appropriate. Full engine validation testing will be completed to TRL 6 providing improved propulsion system performance, maintainability, and durability while reducing integration risk for FVL FLRAA Platform.			
Accomplishments/Planned Programs Subtotals	0.001	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AJ9 / *Integ Mission Equip for Vert Lift Systems Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AJ9: *Integ Mission Equip for Vert Lift Systems Adv Tech*	-	24.278	17.095	2.396	-	2.396	-	-	-	-	0.000	43.769
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates a mission systems architecture to support Future Vertical Lift (FVL) through utilization of a reconfigurable and flexible tiered architectural approach.

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology).

The cited work 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Integrated Mission Equipment for Vertical Lift Systems	24.278	17.095	2.396
Description: Develops and demonstrates a mission systems architecture to support FVL through utilization of a reconfigurable and flexible tiered architectural approach. The approach will consist of the following: Maturing and implementing Model Based Engineering methods and Modular Open Systems Architecture strategies; instantiating an architecture verification environment and developing an agile and resilient digital backbone to support the rapidly changing threat environment including the digital battleground.			
FY 2024 Plans: Will complete automation of AVE, demonstrate representative capability to verify MOSA requirements, transition specification and architecture repository. Will install and flight test digital backbone technologies on experimental UH-60M aircraft. Will integrate, install, and demonstrate multiple sets of mission system components using multiple third party integrators in the Mission Systems Flying Test Bed (MSFTB) lab and conduct flight test on experimental UH-60M aircraft.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AJ9 / *Integ Mission Equip for Vert Lift Systems Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will complete integration and demonstration of mission system components in the Mission Systems Flying Test Bed (MSFTB) lab and flight test on experimental UH-60M aircraft; document lessons learned, complete transition products, and provide support for adoption. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease in FY25 reflects completion of flight tests and shift to documentation and transition support. Funding realigned to PE 0603465A (Future Vertical Lift Advanced Technology) / Project CI8 (Adaptive Avionics Advanced Technologies) and PE 0602148A CI4 (Future Vertical Lift Technology) / Project CI4 (Adaptive Avionics Technologies).			
Accomplishments/Planned Programs Subtotals	24.278	17.095	2.396

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AK3 / *Aviation Survivability Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AK3: *Aviation Survivability Advanced Technology*	-	3.953	-	-	-	-	-	-	-	-	0.000	3.953
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates increased Future Vertical Lift (FVL) survivability through the integration and demonstration of technologies that reduce platform signatures, improve threat warning and countermeasures against integrated networked air and ground threat systems. Also matures and demonstrates unmanned aircraft systems (UAS) survivability technologies to enable manned/unmanned team-based approaches to enable operation in contested peer/near peer environments.

Research in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology).

The cited research 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Survivability Against Integrated Networked Threats ***Description:*** This effort increases rotorcraft survivability by reducing platform signatures, providing the means to more efficiently counter enemy detection and tracking systems	3.953	-	-
Accomplishments/Planned Programs Subtotals	3.953	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AK5 / *Multi-Role Small Guided Missile Advanced Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AK5: *Multi-Role Small Guided Missile Advanced Tech*	-	10.980	11.795	6.105	-	6.105	-	-	-	-	0.000	28.880
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates a holistic lethality solution for current Army Aviation and Future Vertical Lift (FVL) Modernization Priority. This Project matures and demonstrates critical technology and designs components for future affordable rockets and missiles to provide overwhelming defeat of conventional and asymmetrical threats in all environments. Matures and demonstrates component technologies to enable an expeditionary short-to-medium range loitering maneuvering missile with man-in-the-loop capability for situational awareness, targeting, and lethal effects against hard and soft targets; and matures and demonstrates critical component technology and designs for future missiles that provide simultaneous multiple launch, control, and supervised autonomous terminal engagement of multiple missiles.

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project AK4 (Multi-Role Small Guided Missile Tech).

The cited work 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Multiple Simultaneous Engagement Technologies (MSET)	10.980	11.795	6.105
Description: Matures and demonstrates critical component technology and designs for future missiles that provide simultaneous multiple launch, control, and supervised autonomous terminal engagement of multiple missiles against stationary and moving hard/soft targets, image-based target discrimination/shared situation awareness/lock-on, and multi-missile control digital datalink with inter-missile cooperative networked communications. The end-state is a multi-missile Organic command and control (C2) solution that handles all aspects of sensor integration, fire control, and airspace management. This capability will support overwhelming lethal effects against anti-access/aerial denial (A2AD) / Integrated Air Defense Systems (IADS).			
FY 2024 Plans: Will optimize and validate MSET HWIL and high-fidelity simulation using MSET hardware and software data from integrated flight demonstrations. Will mature and demonstrate MSET fire control, command and control (C2) communication for missile simultaneous engagements. Will mature and demonstrate MSET digital command link for missile to missile and C2			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AK5 / *Multi-Role Small Guided Missile Advanced Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
communications. Will mature and advance supervised autonomous target acquisition and terminal target engagement that enable a single user to launch and supervise simultaneous multi-missile engagements. ***FY 2025 Plans:*** Will perform system level demonstration of MSET integrated system to include fire control, command & control, collaborative autonomy, real time multi-agent re-tasking and target acquisition and de-confliction; the demonstration will include simultaneous engagements of stationary and moving target while reducing operator workload; validate MSET HWIL and high-fidelity simulation with system level demonstration data. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease due to planned purchase of hardware ending in FY24 to support demonstrations in FY25.			
Accomplishments/Planned Programs Subtotals	10.980	11.795	6.105

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AK7 / *Adv Rotorcraft Armaments Protection Sys Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AK7: *Adv Rotorcraft Armaments Protection Sys Adv Tech*	-	9.290	-	-	-	-	-	-	-	-	0.000	9.290
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project investigates and demonstrates a holistic lethality solution for Future Vertical Lift (FVL) offensive and defensive applications, focused on but not limited to Future Attack Reconnaissance Aircraft. Develop components for use in multi-role armament solutions for fire control, armament systems, munitions and integration of threat agnostic countermeasures.

Research in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology).

The cited research 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 Armaments Center (AC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Rotorcraft Armament and Protection System (ARAPS) - Future Attack Reconnaissance Aircraft (FARA) ***Description:*** This effort matures and demonstrates a holistic medium caliber lethality solution for Future Vertical Lift offensive applications. Develops components for use in multi-role armament solutions for fire control, software, armament systems, and munitions.	6.557	-	-
Title: ARAPS-Dispenser ***Description:*** This effort matures and demonstrates a dispenser countermeasure, a component of the holistic survivability solution for Future Vertical Lift defensive applications. Develop components for use in multi-role countermeasure solutions for fire control, software and countermeasure systems.	2.733	-	-
Accomplishments/Planned Programs Subtotals	9.290	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AK7 / *Adv Rotorcraft Armaments Protection Sys Adv Tech*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AK8 / *Air Launched Effects Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AK8: *Air Launched Effects Advanced Technology*	-	27.884	28.018	20.615	-	20.615	23.812	24.832	30.764	27.535	0.000	183.460
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project develops and demonstrates the ability to launch an Unmanned Aircraft System (UAS) from a manned or unmanned Future Vertical Lift (FVL) aircraft at tactical altitudes and to control the UAS from the cockpit or a crew station; and assesses the enabled capabilities and determine their relevance to current Army Aviation engagement and survivability portfolios.

Research in this Project is fully coordinated with Program Element (PE) PE 0602148A (Future Vertical Lift Technology), Project CH2 (Air Launched Effects Technology).

The cited research 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Air Launched Effects	27.884	28.018	20.615
Description: Develop and demonstrate the ability to launch a future unmanned aircraft system (FUAS) from FVL platform at tactical altitudes, and to control the UAS from the cockpit or a crew station. Assess the enabled capabilities and determine their relevance to current Army Aviation engagement and survivability portfolios. These air-launched FUAS will employ a variety of non-lethal effects including: electronic attack, decoy, and communications relay.			
FY 2024 Plans: Will further mature and demonstrate decoy and disrupt electronic warfare (EW) air launched effects capabilities through multi-UAS behaviors and novel payloads. Will evaluate range and throughput capabilities of secure, anti-jam communications payloads during teamed flight operations. Will enhance mission systems and system hardening to align with A-CDD. Will demonstrate teams of Detect, Identify, Locate, and Report (DILR), Decoy, Disrupt, and Lethal air launched effects UAS, equipped with advanced teaming software, executing synchronized operations facilitating integrated air defense system (IADS) breach capability in contested conditions through participation in Joint All-Domain Operations.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AK8 / *Air Launched Effects Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will demonstrate in flight launch capability of air launched effects prototype UAS and interfaces compatibility with future aircraft. Will demonstrate decoy and disrupt electronic warfare (EW) air launched effects capabilities through multi- UAS behaviors and payloads. Will evaluate range and throughput capabilities of secure, anti-jam communications payloads during teamed flight operations. Will demonstrate teams of Detect, Identify, Locate, and Report (DILR), Decoy, Disrupt, and Lethal air launched effects UAS, equipped with advanced teaming software, executing synchronized operations facilitating integrated air defense system (IADS) breach capability through participation in Joint All-Domain Operations. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease reflects significant reduction of testing and demonstration efforts in FY25.			
Accomplishments/Planned Programs Subtotals	27.884	28.018	20.615

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AL1 / *Adv Teaming for Tactical Aviation Oper Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AL1: *Adv Teaming for Tactical Aviation Oper Adv Tech*	-	34.600	40.060	35.036	-	35.036	41.291	42.277	30.784	36.983	0.000	261.031
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates and drafts frameworks for autonomous teaming behaviors and autonomous decision making for Future Vertical Lift (FVL) and Future Unmanned Aircraft System (FUAS) platform formations in combined arms operations.

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project AK9 (Adv Teaming for Tactical Aviation Operations Tech).

The cited work 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 Aviation & Missile Center (AvMC) and Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Teaming Demonstration ***Description:*** Develop and demonstrate teaming behaviors and autonomous decision making for mixed FVL and FUAS platform formations in combined arms operations that are beyond current Manned-Unmanned Teaming (MUM-T) technologies. Focus areas include: resilient autonomous algorithms; self-organizing unmanned formations; distributed command and control; and navigation. This effort will also demonstrate multi-platform distributed apertures of multispectral sensors for threat detection and awareness and improved reliability through adaptation in autonomous systems.	26.475	-	-
Title: Sensors / Multi-Function Imagers for Future Aviation ***Description:*** Mature and demonstrate multi-function sensing system concepts to increase FVL manned platform survivability and situational awareness. This will enable the manned FVL platforms to engage in multi-domain advanced teaming operations and leverage autonomous behaviors of both manned and unmanned aviation platforms. This effort will enable tactical operations in complex environments (e.g. high threat, degraded visuals, and urban) through the use of sensing modules suitable for multiple tactical applications. The multifunction sensor approach will mitigate the need for separate dedicated threat warning and situational awareness imaging sensor modules, thus reducing the total cost and logistics burden for future aviation systems.	8.125	8.486	8.043

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AL1 / *Adv Teaming for Tactical Aviation Oper Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2024 Plans: Will mature and optimize an aircraft-hardened multispectral multifunction camera using a proven digital readout integrated circuit for aerial threat warning and situational awareness data collection. Will mature multispectral sensing and threat warning capabilities and establish a threat warning performance baseline. Will conduct flight demonstration of flyable multispectral sensor in relevant environments. ***FY 2025 Plans:*** Will improve threat warning performance through continued multi spectral sensing data collections; demonstrate multispectral sensor in urban environments; optimize and ruggedize flight sensor; demonstrate interim capabilities of a multi-function sensor compared to current fleet baseline. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease is an economic adjustment.			
Title: Complex Advanced Teaming Operations ***Description:*** Mature and demonstrate teaming behaviors and autonomous decision making for mixed FVL and FUAS platform formations in complex and contested operational environments. Focus includes maturing solutions that overcome unique challenges associated with autonomy, teaming, range, communication, navigation and mission operations in littoral and urban / fringe environments, while adhering to Modular Open Systems Approach (MOSA) strategy for rapid insertion and affordability. ***FY 2024 Plans:*** Will adapt and enhance autonomy and teaming technologies for use in complex environment operations, specifically addressing range, navigation, and communication challenges; evaluate initial team dynamic retasking, reconfigurability, and mission execution capabilities within complex and contested operational environments; demonstrate autonomous team of teams synchronized operations facilitating integrated air defense system (IADS) breach capability in contested conditions through participation in Joint all-domain experiments. ***FY 2025 Plans:*** Will demonstrate autonomous team-of-teams synchronized operations across domains to facilitate an integrated air defense system (IADS) breach capability in contested conditions; initiate extension of Modular Open Systems Approach (MOSA) architecture to address unique challenges associated with operations in complex urban / fringe and littoral environments, and begin evaluating open systems attributes through integration of mixed AI and non-AI technologies, including highly-autonomous coordinated team mission behaviors, navigation and mission execution at low altitude in featureless and cluttered terrain, and sophisticated behaviors for employment of targeted electronic attack using teams of UAS. ***FY 2024 to FY 2025 Increase/Decrease Statement:***	-	31.574	26.993

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AL1 / *Adv Teaming for Tactical Aviation Oper Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Funding decrease reflects this effort's shift towards architecture enhancement with reduced flight testing and demonstration activities in FY25. In Fiscal Year (FY) 2025 a portion of this Program Element (PE) was realigned to PE 0602183A (Air Platform Applied Research) / Project DK1 (Air Vehicle Integrated & Alternative Tech (AVIATe)).			
Accomplishments/Planned Programs Subtotals	34.600	40.060	35.036

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army												Date: March 2024
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*				Project (Number/Name) AL7 / *Full Spectrum Targeting Advanced Technology*			
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
AL7: *Full Spectrum Targeting Advanced Technology*	-	8.419	8.955	8.651	-	8.651	8.379	6.861	6.466	6.070	0.000	53.801
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project demonstrates next generation targeting concepts for Future Vertical Lift (FVL) and Future Unmanned Aircraft System (FUAS) platforms.

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project AK9 (Advanced Teaming for Tactical Aviation Operations Technology).

The cited work 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 Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Full Spectrum Targeting	8.419	8.955	8.651
Description: This effort will mature and demonstrate key targeting sensor system concepts to enable the FVL and FUAS modernization priorities. Effort will leverage advancements in laser, infrared imaging focal plane arrays, compact long-range optics, and multispectral system technologies to develop a stabilized, payload that can actively and/or passively image in multiple spectral bands simultaneously to provide robust targeting and situational awareness capabilities for the prevailing battlefield conditions. Effort will demonstrate the ability of multispectral sensing to autonomously scan areas of interest and identify tactical threats with reduced cognitive workloads through sensor fusion and automated spectral selection.			
FY 2024 Plans: Will provide assessment of long range optics performance against military targets in relevant environments. Will provide baseline sensor architecture specifications for steerable turret with dual-band infrared sensor paired with novel compact long-range optical components. Will validate performance of improved multi-band fused Aided Target Recognition (AiTR) algorithms. Will conduct payload demonstration of range performance, Degraded Visual Environment (DVE) capability, and automation of target recognition and acquisition times.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AL7 / *Full Spectrum Targeting Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will provide updated baseline sensor architecture specifications for steerable turret with dual-band infrared sensor paired with novel compact long-range optical components; optimize performance of improved multi-band fused Aided Target Detection and Recognition (AiTD/R) approaches; demonstrate Aided Target Detection/Recognition (AiTD/R) with long range optics and improved performance against military and Camouflage, Concealment, and Deception (CC&D) targets in relevant environments, to include DVE; optimize AiTD/R hardware processing solution design in support of FUAS aircraft. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease is an economic adjustment.			
Accomplishments/Planned Programs Subtotals	8.419	8.955	8.651

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) AL9 / *Holistic Sit Awareness and Dec Making Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
AL9: *Holistic Sit Awareness and Dec Making Adv Tech*	-	28.291	21.128	15.474	-	15.474	18.228	18.606	23.226	23.458	0.000	148.411
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates a pilotage and decision aiding system that allows for carefree operations in complex and hostile environments through demonstration of a comprehensive human machine interface for all situational awareness (SA) domains (terrain & obstacles, threat, weather, & environment); and demonstration of decision aiding technologies to reduce cognitive loading of air crews during operations in complex and hostile environments.

Work in this Project is fully coordinated with Program Element (PE) PE 0602148A (Future Vertical Lift Technology) / AL8 (Holistic Situational Awareness and Dec Making Tech).

The cited work 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 U.S. Army Combat Capabilities Development Command (DEVCOM) Analysis Center (DAC) and Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Holistic Situational Awareness and Decision Making	12.393	12.826	13.574
Description: This program directly contributes to Future Vertical Lift (FVL) to ensure Future Aircraft pilots have the necessary situational awareness, accurate understanding of the tactical mission, and ability to decide faster than our adversaries.			
FY 2024 Plans: Will demonstrate an increase in FVL crew station effectiveness through pilot workload management scenarios that investigate scalable automation methods for select mission tasks while performing simulated combat missions. The automation will leverage an experimental situational awareness data model, and workload and effectiveness will be measured using both subjective and objective means, including biometrics. Will participate in Fiscal Year 2024 (FY24) Project Convergence through flight simulation demonstration to assess this capability's impact in relevant mission scenarios.			
FY 2025 Plans: Will further mature and demonstrate operator performance modeling and data management capabilities; conduct lab demonstrations at vendor locations in preparation for upcoming Army major demonstration events; demonstrate multi-modal			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AL9 / *Holistic Sit Awareness and Dec Making Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
cueing including 3D audio, automation of select mission tasks, and novel human-machine interface optimizing information presentation to FVL pilots. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** In Fiscal Year (FY) 2025 funding increase will support the execution of increased lab demonstrations at vendor locations. Partial funding realignment to PE 0602183A (Air Platform Applied Research) / Project DK1 (Air Vehicle Integrated & Alternative Tech (AVIATe)).			
Title: Multi-function RF for FVL Platforms ***Description:*** This effort matures and demonstrates multi-function radio-frequency (RF) sensor technologies to support the FVL family of systems. It provides integrated software and hardware technologies that enable the use of common electronics and system components to support varied functions, such as enhanced situational awareness, threat-detection and localization, targeting, communications, and aircraft pilotage. This will result in improved performance for these critical functions and reduced requirements for size, weight, and power for mission equipment across FVL platforms. ***FY 2024 Plans:*** Will utilize technical designs and analysis to mature multi-function RF sensor system hardware. Will demonstrate resource management of multiple RF functional modes and mode software on multi-function system hardware. Will validate performance of multi-function technology against relevant targets and current and emerging threats to support the FVL family of systems. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** In Fiscal Year (FY) 2024, this effort is completed.	13.887	6.188	-
Title: Early Human Systems Integration Demonstrations ***Description:*** Human Systems Integration (HSI) analysis assesses and matures technologies to optimize pilot situational awareness and workload management, crew task automation and decision-aiding, information management, and advanced crew station interfaces. The objective of this effort is to reduce crew decision and task execution timelines in a tactically challenging mission environment. ***FY 2024 Plans:*** Will mature and demonstrate effects of dynamic information processing to enhance aircrew situational awareness, decision-making, and information management. Will assess and mature technologies for performance-based crew workload measurement and task automation, will assess impact of advanced technologies to enhance Soldier performance via large data analytics, and will assess and optimize advanced Soldier displays. Will demonstrate interface design extensions to support enhanced	2.011	2.114	1.900

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** AL9 / *Holistic Sit Awareness and Dec Making Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
sense making and decision making in AMD C2 operations centers conducting multi-domain operations (MDO). Will develop and demonstrate a concept for supervised automation (supervisory control) in AMD C2 operations centers. ***FY 2025 Plans:*** Will mature and demonstrate effects of intelligent agents and virtual crewmember to enhance aircrew decision-making, situational awareness, and dynamic information management; mature technologies for performance-based crew workload measurement and task automation, demonstrate impact of advanced technologies to enhance Soldier performance with embedded large data analytics, and mature advanced Soldier displays to include augmented reality interfaces; continue to demonstrate interface design extensions to support enhanced sense making and decision making in AMD C2 operations centers conducting multidomain operations; demonstrate and analyze concepts for supervised automation (control) in AMD C2 operations centers; mature the multi-level C2 performance assessment that considers the Soldier and system capabilities and limitations. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease is an economic adjustment.			
Accomplishments/Planned Programs Subtotals	28.291	21.128	15.474

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army												Date: March 2024
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*				Project (Number/Name) BP8 / *Future Vertical Lift Air Platform Adv Tech (CA)*			
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
BP8: *Future Vertical Lift Air Platform Adv Tech (CA)*	-	94.750	-	-	-	-	-	-	-	-	0.000	94.750
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Congressional Interest Item funding provided for Future Vertical Lift Air Platform Advanced Technology.

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for Future Vertical Lift Air Platform 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 2023	FY 2024
Congressional Add: Program Increase - UH-60 Main Rotor Blade Modernization ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for UH-60 Main Rotor Blade Modernization	5.000	-
Congressional Add: Program Increase - Data Refinement and Optimization for Aviation Sustainment ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Data Refinement and Optimization for Aviation Sustainment	4.500	-
Congressional Add: Program Increase - Fleetspace Maintenance Tool ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Fleetspace Maintenance Tool	5.250	-
Congressional Add: Program Increase - Platform Digitization and Maintenance ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Platform Digitization and Maintenance	7.000	-
Congressional Add: Program Increase - Stretch Broken Carbon Fiber ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Stretch Broken Carbon Fiber	10.000	-
Congressional Add: Program Increase - UAS Fuel Systems Enhancements	2.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** BP8 / *Future Vertical Lift Air Platform Adv Tech (CA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
FY 2023 Accomplishments: Congressional Interest Item funding provided for UAS Fuel Systems Enhancements		
Congressional Add: Program Increase - ADDITIVE MANUFACTURING CAPABILITY ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Additive Manufacturing Capability	2.000	-
Congressional Add: Program Increase - ADDITIVE MANUFACTURING FOR FVL ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Additive Manufacturing for FVL	10.000	-
Congressional Add: Program Increase - AUTONOMOUS CONFIGURATION MANAGEMENT AND AVIATION RECORDS ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for AUTONOMOUS CONFIGURATION MANAGEMENT AND AVIATION RECORDS	10.000	-
Congressional Add: Program Increase - DLC COATINGS FOR RED PHOSPHOROUS OBSCURANTS ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for DLC COATINGS FOR RED PHOSPHOROUS OBSCURANTS	3.000	-
Congressional Add: Program Increase - FVL SURFACE TOLERANT ADHESIVES ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for FVL SURFACE TOLERANT ADHESIVES	9.000	-
Congressional Add: Program Increase - INDIVIDUAL BLADE AND HIGHER HARMONIC CONTROL ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Individual Blade and Higher Harmonic Control	22.000	-
Congressional Add: Program Increase - Multi-Drone, Multi-Sensor ISR ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Multi-Drone, Multi-Sensor ISR	5.000	-
Congressional Adds Subtotals	94.750	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** BP8 / *Future Vertical Lift Air Platform Adv Tech (CA)*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) CA8 / *Adv Rotocraft Armaments Protection Sys*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CA8: *Adv Rotocraft Armaments Protection Sys*	-	2.824	6.388	4.764	-	4.764	3.426	10.332	12.875	13.004	0.000	53.613
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project investigates and demonstrates a holistic lethality solution for Future Vertical Lift (FVL) offensive and defensive applications, focused on but not limited to Future Long Range Assault Aircraft (FLRAA). Develop components for use in multi-role armament solutions for fire control, armament systems, munitions and integration of threat agnostic countermeasures.

Work in this Project complements Program Element (PE) 0602183A (Air Platform Applied Research), Project DE2 (Airborne Threat Defeat).

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

Research in this Project is performed by the Armaments Center (AC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Rotorcraft Armanents Protection System-Future Long Range Assault Aircraft	2.824	6.388	1.257
Description: This effort matures and demonstrates a holistic small caliber lethality solution for FVL offensive applications. Integrates and demonstrates components for use in multi-role armament solutions for fire control, software, and armament systems. ***FY 2024 Plans:*** Will optimize stabilized mount for weight, performance, size and power integration needs of future aviation platforms. Will demonstrate improved aviation armament system performance from an optimized weapon mount integrated on an air platform. Will validate improved weapon system accuracy and performance for future aviation platforms in a relevant environment. ***FY 2025 Plans:*** Will validate improved aviation armament system performance from an optimized weapon mount integrated on an air platform. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** In FY25 Funding decrease reflects planned completion of mount stabilization integration needs of future aviation platforms and completion of demonstration of system performance from an optimized weapon mount integrated on an air platform. In Fiscal			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CA8 / *Adv Rotocraft Armaments Protection Sys*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Year (FY) 2025 a portion of this Program Element (PE) was realigned to PE 0602183A (Air Platform Applied Research) / Project DK1 (Air Vehicle Integrated & Alternative Tech (AVIATe)).			
Title: Aviation CM Advanced Tech ***Description:*** This effort will mature and demonstrate countermeasure and lethality solutions necessary to protect current and future aviation platforms. The effort will focus on offensive and or defensive applications of armament systems for use in multi-role applications. ***FY 2025 Plans:*** Will improve area weapon armament system performance through modeling and sub-system level demonstration. Will mature use of holistic armament system and countermeasures for offensive and defensive fires. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** This is a new start effort in FY25. Funding for this task was realigned from Program Element (PE) 0602148A (Future Vertical Lift), Project AK2 (Aviation Survivability Technology) and Program Element (PE) 0603462A (Next Generation Combat Vehicle Advanced Technology), Project BK6 (Adv Direct InDirect Armament Sys (ADIDAS) Adv Tech).	-	-	3.507
Accomplishments/Planned Programs Subtotals	2.824	6.388	4.764

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) CC4 / *FVL Radar Advanced Technologies*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CC4: *FVL Radar Advanced Technologies*	-	3.220	4.403	-	-	-	2.389	3.895	4.422	4.947	0.000	23.276
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Fiscal Year (FY) 2025 is a skip year. This project has no FY 2025 budget request.

A. Mission Description and Budget Item Justification

This Project develops Next Generation Reconfigurable Radar Aperture for detection, tracking and precision targeting, navigation and fire control for both reconnaissance, surveillance, and target acquisition (RSTA) and intelligence, surveillance and reconnaissance (ISR).

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project CC3 (FVL Radar Technologies).

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 Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Multi-mission Airborne Radar	3.220	4.403	-
Description: Advanced Digital radio frequency (RF) processing integration with final demonstration subsystem and system level radar hardware and software designs. ***FY 2024 Plans:*** Will validate component integration into radar system level capability in a surrogate airframe body. Will conduct flight demonstration of all-weather, day/night, Detect, Identify, Locate, and Report (DILR) capability via a small form factor radar system and Automatic Target Recognition (ATR) capability on surrogate Air Launched Effects (ALE) platform. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** In Fiscal Year (FY) 2024, this effort is completed.			
Accomplishments/Planned Programs Subtotals	3.220	4.403	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CC4 / *FVL Radar Advanced Technologies*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) CG1 / *Holistic Team Survivability Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CG1: *Holistic Team Survivability Adv Tech*	-	11.597	15.339	14.438	-	14.438	19.299	13.385	15.655	17.836	0.000	107.549
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates increased Future Vertical Lift (FVL) Family of Systems Survivability (FoS) in an advanced integrated air defense systems environment through a multi-layered approach. The approach focuses on maturing and demonstrating technologies for reducing aircraft susceptibility and vulnerability during pre-mission planning, mission execution (combat survivability and safety), and post-mission repair and return to service.

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project CH3 (Holistic Team Survivability Technology).

The cited work 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 Aviation & Missile Center (AvMC) and Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Radio Frequency Countermeasures	6.617	6.918	6.964
Description: This effort matures and demonstrates adaptive sensor and countermeasure technologies that provide platform protection against guided threats. It develops software and hardware to increase probability of detection and defeat of threats to aviation platforms using modeling and simulation (M&S), hardware in the loop (HIL) assessment, and field events. It provides integrated software and sensor technologies to counter the characteristics of advanced and agile threats.			
FY 2024 Plans: Will exploit advances in chip-scale technology, enabling the replacement of high Size, Weight and Power-Cost, (SWAP-C) analog RF components with low SWAP-C semi-conductor components. Will mature and integrate these next-generation RF components into a payload with enhanced capability. Will improve payload performance against current and emerging threats and provide technical models of the optimized payload. Will demonstrate improved algorithms and payload behaviors of the next-generation payload.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CG1 / *Holistic Team Survivability Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will mature RF threat defeat techniques and technique description framework to enable portability of techniques; improve low SWAP-C payload and implement threat defeat techniques in payload hardware; validate projected performance of integrated payload with advanced algorithms and techniques; demonstrate team-based behaviors of multiple RF payloads with increased range, capability, and probability of threat defeat in laboratory. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding change is an economic adjustment.			
Title: Holistic End to End Survivability ***FY 2024 Plans:*** Will continue to develop and mature team based survivability architectures, behaviors, and component technologies. Will conduct feasibility analysis of integration for Crashworthiness/Crash predictive capabilities into the Survivability Correlator software architecture. Will continue to maturate EO/IR coatings and RF materials for future manned and unmanned platform demonstration. Will continue maturation / demonstration of air vehicle vulnerability reduction technologies. Will demonstrate air-to-air recovery of UAS to host platform. Will continue to mature team based survivability architectures, behaviors, and component technologies. ***FY 2025 Plans:*** Will begin integration if microclimatology algorithms into the Survivability Correlator software in the loop (SIL) environment; perform SIL integration team-based survivability behaviors and begin component technologies demonstrations; begin integration of improved durability RF materials and Electro-Optical/ Infrared coatings onto demonstration platform(s); perform integration and flight test demonstration of unmanned arial systems survivability component technologies. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding change reflects planned lifecycle glide path of this effort with ramp down of team-based survivability architectures development.	4.980	8.421	7.474
Accomplishments/Planned Programs Subtotals	11.597	15.339	14.438

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*				Project (Number/Name) CH7 / *Power & Thermal Management for FVL Adv Tech*			
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
CH7: *Power & Thermal Management for FVL Adv Tech*	-	4.315	4.294	5.459	-	5.459	7.577	5.499	2.104	2.125	0.000	31.373
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates at the system level, integrated electrical power technologies (including power generation, distribution, and control along with advanced energy storage) and thermal management technologies to provide significantly higher electrical power capability to Future Vertical Lift (FVL) aircraft while addressing consequential size, weight, pulsed power, and thermal issues. Provides power capability for advanced electric aeromechanical effectors, advanced mission systems that for example, execute algorithms for route planning and teaming, and for advanced survivability and electronic warfare capability. Will demonstrate software-in-the-loop performance of power & thermal management technologies to provide significantly higher electrical power capability to FVL aircraft while addressing consequential SWAP-C & thermal issues.

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project CH4 (Power & Thermal Management for FVL Tech).

The cited work 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 Aviation & Missile Center (AvMC) and Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2023**	**FY 2024**	**FY 2025**
Title: Optimized Energy for C5ISR Platforms Advanced Technology	2.005	2.042	2.070
Description: Enable advanced Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) and survivability systems on FVL platforms through component development of improved high power and energy storage technologies, higher capacity lower Size, Weight, and Power (SWaP) cooling systems, and more efficient electrical architectures			
FY 2024 Plans: Will mature and demonstrate electrical power controls that will optimize the availability and efficiency of electrical power sources, including batteries and power generation for power on FVL aircraft; optimize for both performance and safety of energy storage systems through improved packaging for aviation applications.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CH7 / *Power & Thermal Management for FVL Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will exploit power controls findings to improve electrical performance while increasing electrical power source efficiency; improve safety while maintaining performance of energy storage systems through improved packaging for aviation FVL aircraft applications. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase is an economic adjustment.			
Title: Power & Thermal Management Tech Demo ***Description:*** Exploits fabrication, and systems integration lab validation testing to Technical Readiness Level (TRL) 6 of power and thermal management technologies to provide significantly higher electrical power capability to FVL aircraft while addressing thermal issues and reducing system weight/volume ***FY 2024 Plans:*** Will continue fabrication of advanced power and thermal management system components and begin fabrication/modification of the systems integration laboratory to be used in component level and system level validation efforts; conduct component level and system level validation efforts, ***FY 2025 Plans:*** Will complete fabrication of advanced power and thermal management system components and the systems integration laboratory to be used in component level and system level validation efforts; continue component level and system level validation efforts. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase in FY25 supports fabrication and increased component and system level testing and validation of power and thermal management system technologies. Partial funding support from PE 0602148A (Future Vertical Lift Technology) / Project CH4 (Power & Thermal Management for FVL Tech).	2.310	2.252	3.389
Accomplishments/Planned Programs Subtotals	4.315	4.294	5.459

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) CI8 / *Adaptive Avionics Advanced Technologies*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CI8: *Adaptive Avionics Advanced Technologies*	-	-	-	10.046	-	10.046	17.929	16.940	19.150	19.342	0.000	83.407
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This effort begins in FY25 with funding realigned from PE 0603456A (Future Vertical Lift Advanced Technology) / Project AJ9 (Integ Mission Equip for Vert Lift Systems Adv Tech).

A. Mission Description and Budget Item Justification

This project will develop the ability for rapidly adaptable mission systems hardware and software that utilizes tactical situational awareness to optimize performance and will develop robust, secure and ruggedized computing elements, advanced architectures for efficient data storage and processing, algorithms for optimized computing resources and hardware qualification approaches. These resource technologies will be used in the development of solider tailorable software applications, adaptable security controls and dynamic use of system of systems capabilities across the Combat Aviation Brigade (CAB).

Work in this Project is fully coordinated with Program Element (PE) 0602148A (Future Vertical Lift Technology) / Project CI4 (Adaptive Avionics Technologies).

The cited work 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Reconfigurable Mission Systems (RMS)	-	-	7.469
Description: This effort will develop rapidly adaptable mission systems capabilities using affordable and sustainable approaches that will enable tactically reconfigurable and responsive software technologies. The objective for RMS is to leverage previous MOSA successes to develop and demonstrate soldier reconfigurable, tailorable mission systems software capabilities to ensure Future Vertical Lift (FVL) dominance and develop proactive mission systems capabilities development and deployment to accelerate speed of action.			
FY 2025 Plans: Will begin development of reconfigurable software capabilities by leveraging results from Future Avionics Implementation Research (FAIR) and specifying reconfigurable approaches, implementing recurring technology identified by stakeholders and exploring how they can be used in more efficient ways to promote reuse through reconfiguration; continue to explore RMS			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CI8 / *Adaptive Avionics Advanced Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
concepts including but not limited to Dynamic Software Architecture, or dynamic software updating; investigate approaches for scalability in time, space, and resources; investigate agility in computing processes; develop adaptive security methods and further investigate cybersecurity techniques with S3I Lab integration and testing. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** This effort begins in FY25 with funding realigned from PE 0603456A (Future Vertical Lift Advanced Technology) / Project AJ9 (Integ Mission Equip for Vert Lift Systems Adv Tech).			
Title: Tactical Real-time Avionics Computing Enabler (TRACE) ***Description:*** This effort will develop advanced data architectures and the ability to utilize ever evolving commercial computing products to increase the ability to efficiently process massive amounts of available data. The objective for TRACE is to develop a computing hardware resource management system for the Future Vertical Lift (FVL) family of systems that uses contextual situational awareness to dynamically reallocate computing resources to effectively and efficiently process the massive amounts of data available across distributed assets. ***FY 2025 Plans:*** Will begin development of advanced data management capability by utilizing lessons learned from Future Avionics Implementation Research (FAIR) to identify and procure a data management capability that enables rapid decomposition of data, enabling the efficient conversion of raw data into useful information; investigate advanced pattern recognition techniques to further enable efficient digestion of data and develop smart data processing capabilities; further utilize lessons learned from FAIR to identify and procure processing unit(s) that are capable of real-time allocation and distribution of resources to focus processing power on prioritized tasks and able to change priorities real-time Implement; begin development of software algorithms to enable distributed computing resource loading based on operational need and availability Incorporate advanced data management capabilities learned from FAIR to improve data storage, management, access and processing efficiencies and investigate qualification approaches and technologies that isolate qualification concerns between chassis and processor cards. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** This effort begins in FY25 with funding realigned from PE 0603456A (Future Vertical Lift Advanced Technology) / Project AJ9 (Integ Mission Equip for Vert Lift Systems Adv Tech).	-	-	2.577
Accomplishments/Planned Programs Subtotals	-	-	10.046

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CI8 / *Adaptive Avionics Advanced Technologies*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*				Project (Number/Name) CJ5 / *Future Vertical Lift Medical Advanced Technology*			
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
CJ5: *Future Vertical Lift Medical Advanced Technology*	-	1.027	1.320	1.595	-	1.595	1.597	1.600	1.604	1.620	0.000	10.363
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project evaluates, validates, matures and delivers medical guidelines and strategies to assure optimal Soldier performance and protection on the future technologically-intensive battlefield. Key elements of the program include: 1) tailored medical selection and retention standards for Future Vertical Lift (FVL); 2) medical strategies to maintain and enhance human performance in Multi-domain operations (MDO); 3) human-centered technology design guidance to accommodate the range of aircrew; 4) improved protection standards to reduce FVL occupant injury; and 5) operator state monitoring tools to enable scalable autonomy in FVL aircraft.

Efforts in this Project further develop work done in Program Element 0602148A (Future Vertical Lift Technology) / Project BZ7 (Future Vertical Lift Medical Technologies).

Work in this Project is performed by the United States Army Aeromedical Research Laboratory (USAARL).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Biomedical Strategies to Support Design and Operation of Future Vertical Lift (FVL) Aircraft	1.027	1.320	1.595
Description: This effort evaluates, validates, matures and delivers medical guidelines and strategies to assure optimal Soldier performance and protection on the future technologically-intensive battlefield. Key elements of the program include: 1) tailored medical selection and retention standards for FVL; 2) medical strategies to maintain and enhance human performance in MDO.); 3) human-centered technology design guidance to accommodate the range of aircrew; 4) improved protection standards to reduce FVL occupant injury; and 5) operator state monitoring tools to enable scalable autonomy in FVL aircraft.			
FY 2024 Plans: Will validate recommended holistic HSM limits for injury and performance. Will validate human variables for operator state assessment and mature a holistic aircrew workload/ performance stress model. Will validate proposed responses of autonomous system to FVL aircrew. Will validate package for enhanced FVL crashworthiness. Efforts in this task further develop work done in Program Element 0602148A, Project BZ7.			
FY 2025 Plans: Develop injury criteria for whole-body response to vertical and frontal acceleration. Validate human factor, efficacy and flight compatibility of US Army aviation life support equipment. Validate impacts of trust on aircrew workload and performance under stress. Validate spatial audio display design guidelines to enhance pilot radio communication capabilities for Future Vertical Lift.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CJ5 / *Future Vertical Lift Medical Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Assess/validate torso harness restraint system performance. Efforts in this task further develop work done in Program Element 0602148A, Project BZ7. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	1.027	1.320	1.595

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603465A / *Future Vertical Lift Advanced Technology*	Project (Number/Name) CK2 / *High Speed Maneuverable Missile (HSMM) Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CK2: *High Speed Maneuverable Missile (HSMM) Adv Tech*	-	-	-	15.999	-	15.999	2.676	4.917	10.290	20.482	0.000	54.364
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

High Speed Maneuverable Missile (HSMM) Adv Tech is a new start within the Future Vertical Lift Advanced Technology program in FY 2025.

This Project continues and matures technologies developed in Budget Activity 2 Program Element 0602148 (Future Vertical Lift Tech) / Project CI5 (High Speed Maneuverable Missile Tech).

A. Mission Description and Budget Item Justification

The Project matures and demonstrates missile component technologies compatible with Future Vertical Lift (FVL) aviation platforms in a Multi-Domain Battle/Cross-domain Maneuver operational environment. Efforts mature technologies to support a smaller, faster, maneuverable missile capable of long-range non-line-of-sight attack in contested/degraded environments. Technology development increases aviation lethality and platform survivability by increasing missile standoff range, speed, and maneuverability, a faster rate of fire, shorter times of flight, and multi-threat lethal effects. Enables cross domain applications for aviation and ground vehicle platforms, including handoff capability, to engage threats in dead zones, and to operate in contested environments.

Work in this Project is fully coordinated with PE 0602148 (Future Vertical Lift Technology) / Project CI5 (High Speed Maneuverable Missile Tech).

The cited work 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 Aviation & Missile Center (AvMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: HSMM Tech Maturation and Demo	-	-	15.999
Description: Efforts provide technology maturation to support a maneuverable missile capable of both short-range direct attack and long-range non-line-of-sight attack with reduced time to target; reduced size and weight for increased load-out; capable of air and ground launched missions in degraded/contested environments.			
FY 2025 Plans: Will mature critical missile sensor components, demonstrate, and optimize sensor component data during system level demonstration to verify system performance in relevant environment to include degraded and contested environments; mature,			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603465A / *Future Vertical Lift Advanced Technology*	**Project (Number/Name)** CK2 / *High Speed Maneuverable Missile (HSMM) Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
demonstrate, and validate missile test bed capability with data collected from relevant environment; demonstrate the advanced propulsion system to verify increased range and speed with desired trajectory for effectiveness and survivability. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** BA3 funding for Project CK2 (HSMM Adv Tech) was approved to accelerate lethality capability at extended ranges for Aviation platforms; Technology transitions in Fiscal Year (FY) 2024 from PE 0602148A (Future Vertical Lift Tech) / Project CI5 (HSMM Tech) for further maturation and demonstration starting in FY 2025.			
Accomplishments/Planned Programs Subtotals	-	-	15.999

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A