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 0603116A *I Lethality 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	-	11.460	20.582	33.969	-	33.969	46.692	40.828	51.433	40.384	0.000	245.348
CG2: *Lethality Enabling University Adv Development*	-	9.374	8.594	8.073	-	8.073	8.522	8.528	8.621	8.708	0.000	60.420
CH5: *Terminal Effects Against Critical Targets Adv Tech*	-	2.086	4.020	5.178	-	5.178	1.035	1.885	2.556	3.800	0.000	20.560
CID: *Sensor to Shooter (STS) Advanced Technology*	-	-	5.655	9.987	-	9.987	23.622	16.299	15.654	4.241	0.000	75.458
DB2: *Future Armaments Scalable Technologies*	-	-	2.313	6.123	-	6.123	8.061	6.352	13.148	12.067	0.000	48.064
LR1: *Long Range Sensing Adv Tech*	-	-	-	4.608	-	4.608	5.452	7.764	11.454	11.568	0.000	40.846

Note

In Fiscal Year (FY) 2025, Project LR1 (Long Range Sensing Adv Tech) is a new start within Program Element (PE) 0603116A (Lethality Advanced Technology).

A. Mission Description and Budget Item Justification

Work done in this Program Element (PE) matures technologies, methodologies, and models required to enable next generation lethality. The PE focuses on: lethal mechanism technologies for projectiles and warheads that provide revolutionary capability to defeat Tier 1 adversary vehicle and body armors; selection of propulsion and energetic materials and technology to validate novel energetic materials concepts to exploit controllable energy release for future gun/missile systems; scalable effects for mixed target defeat while simultaneously decreasing warhead mass; experimentation of materials solutions for improvement of weight and volume efficiency, lethal effects and sustainability for the warfighter in the Army of today and beyond; and multiple pathways to enhance lethal effects by investigating synergistic effects of novel micro warheads using advanced materials.

This PE continues to mature and demonstrate technology developed under PE 0602141A (Lethality Technology).

Work in this PE complements PE 0603118A (Soldier Lethality Advanced Technology), PE 0603462A (Next Generation Combat Vehicle Advanced Technology), PE 0603464A (Long Range Precision Fires Advanced Technology), 0603465A (Future Vertical Lift Advanced Technology), and 0603466A (Air and Missile Defense Advanced Technology).

The cited research is consistent with the Under Secretary of Defense for Research and Engineering priority 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* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603116A / *Lethality Advanced Technology*

Research in this PE is performed by University Technologies Development Division (UTDD), GeoTechnical Instructors Laboratory, Armaments Center, Space and Missile Defense Technical Center and Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	9.796	20.582	22.485	-	22.485
Current President's Budget	11.460	20.582	33.969	-	33.969
Total Adjustments	1.664	0.000	11.484	-	11.484
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.000	-			
• SBIR/STTR Transfer	-0.336	-			
• Adjustments to Budget Years	-	-	11.484	-	11.484

Change Summary Explanation

Funding increase is due to realignment for Sensor to Shooter from 0603041A All Domain Convergence Advanced Technology / CL9 Collab Battlefield Networked Leth Sys Adv Tech, 0603464A Long Range Precision Fires Advanced Technology / AG3 Extended Range Cannon Artillery (ERCA) Adv Tech, and 0603462A Next Generation Combat Vehicle Advanced Technology / BK6 Adv Direct InDirect Armament Sys (ADIDAS) Adv Tech.

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 0603116A / *Lethality Advanced Technology*	Project (Number/Name) CG2 / *Lethality Enabling University Adv Development*	

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
CG2: *Lethality Enabling University Adv Development*	-	9.374	8.594	8.073	-	8.073	8.522	8.528	8.621	8.708	0.000	60.420
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Project leverages advanced developments and technological innovations from academia, of lethal directed energy, laser diagnostics and accelerated design of future hypersonics and their scramjet engine combustion, deep learning and novel materials of importance to the Army, by maturing developments and performs demonstrations focused on getting technology to the warfighter more quickly. This Project exploits advanced research and development efforts to focus more on mid to far-term Army modernization priorities while also maintaining delivery of near-term technologies critical to the Long Range Precision Fires and Air and Missile Defense. This Project focuses on maturation and demonstration of various advanced technologies originating from extramural applied research in academia pertaining to lethal directed energy, laser diagnostics, future hypersonic glide body and scramjet propulsor design, deep learning, novel materials, and expansion of the Ballistic, Aero-Optics and Materials (B.A.M.) range applied to lethality. This effort validates advanced research and performs demonstrations leading to potential emerging technologies in areas of strategic importance to the Army in directed energy, future hypersonic glide body design, deep learning and novel materials, etc., by bringing competitively selected Universities with research and development teams into Technical Alliances.

Work in this Project complements Program Element (PE) 0620141A (Lethality Technology), PE 0602147A (Long Range Precision Fires), PE 0603464A (Long Range Precision Fires Advanced Technology), and PE 0603466A (Air and Missile Defense Advanced Technology)

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

Work in this Project is performed by the University Technology Development Division.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Laser Diagnostics for Hypersonics and Directed Energy	2.719	2.469	2.873
Description: This effort matures laser diagnostics to assess turbulence and boundary layer transition, leading to validation of hypersonic flight models and enhanced directed energy system effectiveness and range through improved targeting, prediction and beam control.			
FY 2024 Plans: Will continue to improve and validate models for directed energy system effectiveness. Mature and demonstrate methods of sensing for hypersonic ground test and flight applications and for the measurement of turbulent aero-optical environments.			

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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** CG2 / *Lethality Enabling University Adv Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Validate and optimize models from results of experimentation in the Ballistic Aero-Optics and Materials (B.A.M.) and other test facilities. ***FY 2025 Plans:*** Will mature and demonstrate measurement technologies to enable further understanding of hypersonic flow physics and the design and development of more agile, robust and higher efficiency hypersonic platforms. Develops higher fidelity characterization of ground test facilities and the ability of the measurements to capture critical physical phenomena through the application of advanced laser-based technologies for diagnostics in hypersonic flows and related laser-based and spectroscopic diagnostic applications; improves the accuracy of propagation distortion predictions using high performance computer generated fully turbulent simulated environments; validates predictive tools using enclosed ranges with well quantified atmospheric conditions and the development of methods to correct for near field turbulence; incorporates the Ballistic Aero-Optics and Materials (BAM) range to validate data and improve test techniques. The benefits of this effort are long term reductions in test cost, improving the amount and quality of data gathered through ground testing, and increased effectiveness of directed energy systems. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects administrative realignment from the task titled Intelligent Hypersonics and Other Missile Defense Systems within this project.			
Title: Turbulence and Transition Modeling and Validation for Hypersonic Vehicles ***Description:*** This effort matures modeling turbulence and transition for hypersonic vehicles to accelerate design of future hypersonic glide bodies and systems through modeling and sub scale testing. ***FY 2024 Plans:*** Continue to improve and provide computational fluid dynamics high performance computing models for transition, and turbulence models to improve hypersonic investigations and improve the rate of hypersonic vehicle design. Conduct validation experiments across multiple types of hypersonic test tunnels. ***FY 2025 Plans:*** Will mature and demonstrate a toolkit for hypersonic vehicle design; mature and demonstrate the prediction and control of drag and thermal loading of hypersonic platforms; improve tools for next generation flight systems and extending the operating envelope for current systems; continue to mature technologies to improve modeling for hypersonic flight activity; incorporates the Ballistic Aero-Optics and Materials (BAM) range to validate data and improve test techniques. The benefits of this effort are a	3.324	3.039	3.807

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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** CG2 / *Lethality Enabling University Adv Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
reduction in hypersonic glide body development life cycle timelines and reduction in flight testing required to achieve an optimal glide body design. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects administrative realignment from the task titled Intelligent Hypersonics and Other Missile Defense Systems within this project.			
Title: Novel Materials for Extreme Environments ***Description:*** This effort matures and validates computational and multiscale models of high strain rate materials to mitigate the effects of hypervelocity impacts (HVIs) and offer thermal protection. ***FY 2024 Plans:*** Will continue to mature and improve characterization and materials for extremely high temperature applications. Will demonstrate an accelerated discovery approach for selecting high entropy materials for extreme environments. Will mature and demonstrate novel coatings as thermal protection systems. Will validate techniques and performance of composite joining materials and their multi-physics models. ***FY 2025 Plans:*** Will validate performance of specified materials exposed to extreme environments to enable optimization of new protective coatings designed for targeted functions; validate the ability of different materials and materials interfaces to withstand large internal temperature gradients and stress; mature and demonstrate novel techniques to support carbon-carbon composite manufacturing, joining, and repair; matures and demonstrates emerging technologies in thermal protection and hypervelocity impact; incorporates the Ballistic Aero-Optics and Materials (BAM) range to validate data and improve test techniques. The benefits in this effort support improvements in thermal protection systems and manufacturing and repair techniques of specific novel materials. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects administrative realignment from the task titled Intelligent Hypersonics and Other Missile Defense Systems within this project.	1.125	0.932	1.135
Title: Intelligent Hypersonics and Other Missile Defense Systems ***Description:*** This effort matures and validates hypersonic vehicle flight systems with deep learning neural networks that can adapt to changing conditions and become more lethal. Integration of air and missile defense (AMD) command and control (C2) systems and their instrumentation, simulation, and stimulation. ***FY 2024 Plans:***	2.206	2.154	0.258

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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** CG2 / *Lethality Enabling University Adv Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will continue to validate ablation characteristics and the semi-autonomous synthetic flight control system's performance and vehicle self-health monitoring sensors. Will continue to mature, integrate and demonstrate instrumentation, simulation, and stimulation of air and missile defense (AMD) C2 systems. ***FY 2025 Plans:*** Will mature and demonstrate emerging intelligent hypersonics technology, relevant hardware to optimize aerothermodynamic performance; mature, integrate and demonstrate emerging technologies for instrumentation, simulation, and stimulation of air and missile defense command and control systems. The benefits of this effort improve hypersonic flight adaptability and lethality. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease reflects administrative realignment to task (Laser Diagnostics for Hypersonics and Directed Energy), task (Turbulence and Transition Modeling and Validation for Hypersonic Vehicles), and task (Novel Materials for Extreme Environments) within this project.			
Accomplishments/Planned Programs Subtotals	9.374	8.594	8.073

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 0603116A / *Lethality Advanced Technology*	Project (Number/Name) CH5 / *Terminal Effects Against Critical Targets 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
CH5: *Terminal Effects Against Critical Targets Adv Tech*	-	2.086	4.020	5.178	-	5.178	1.035	1.885	2.556	3.800	0.000	20.560
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates engineering tools and high-fidelity modeling and simulation capabilities to predict and optimize weapon performance to ensure lethality against structures and critical assets. This project provides validated engineering tools and technologies to rapidly evaluate and predict weapon performance.

Work in this Project complements Program Element (PE) 0602141A (Lethality Technology) / Project CF8 (Terminal Effects Against Critical Targets Tech).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Terminal Effects Demonstration	2.086	4.020	5.178
Description: Demonstrates and provides a predictive capability for terminal effects and lethality and a fast running engineering tool to support Long Range Precision Fires (LRPF) weaponeering on critical structural and geological targets of interest. ***FY 2024 Plans:*** Will demonstrate combined blast/frag/structural models in BlastX tool, will validate PENFRAG Code for prediction and analysis of munition fragment and small caliber penetration, will demonstrate PENCURV+ updates for advanced penetration prediction and analysis capabilities. ***FY 2025 Plans:*** Will demonstrate and provide BlastX engineering tool for advanced blast propagation and combined blast/fragmentation models for integration into Army and joint weaponeering systems and will provide semi-automated assessment/capabilities for battle damage assessment for implementation into Army and joint weaponeering systems. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects planned additional workflows for this effort as technologies are transitioned for maturation and demonstration.			
Accomplishments/Planned Programs Subtotals	2.086	4.020	5.178

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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** CH5 / *Terminal Effects Against Critical Targets Adv Tech*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603116A / *Lethality Advanced Technology*	Project (Number/Name) CID / *Sensor to Shooter (STS) 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
CID: *Sensor to Shooter (STS) Advanced Technology*	-	-	5.655	9.987	-	9.987	23.622	16.299	15.654	4.241	0.000	75.458
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates an advanced network lethality architecture to enable Joint All Domain Command and Control decision aid algorithms for coordinated and synchronized response and incorporates a full spectrum of effects and scalability to reduce the sensor to shooter timeline for Large Scale Combat Operations in a multi-domain environment.

Work in this Project complements Program Element (PE) 0602141A (Lethality Technology) / Project CIB (Sensor to Shooter (STS) Applied Research).

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

Work in this Project supports Next Generation Combat Vehicle, Tactical Network, Future Vertical Lift, and Long-Range Precision Fires Army Modernization Priorities.

Work in this Project is performed by the Armaments Center and Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Lethal Effects Architecture for Decision Synchronization Advanced Technology	-	5.655	8.102
Description: This effort demonstrates an enhanced decision aid architecture to automate synchronized effects, improve sensor to shooter interaction, and optimize threat engagement in support of Large-Scale Combat Operations in a joint all-domain command and control environment.			
FY 2024 Plans: Will mature networked lethality architecture to enable automated targeting for rapid engagement; mature digital collaborative targeting capabilities, fires planning and de-confliction tools, and coordination and delivery algorithms to reduce sensor to shooter timelines; mature disparate joint effects across domains in support of future large scale combat operations and multi-domain operations; mature sensor to shooter decision aid algorithms to incorporate multi-domain effects into decision aid recommendations; mature decision aid algorithms to allow for scalability and increased number of weapons and targets.			
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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** CID / *Sensor to Shooter (STS) Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will demonstrate advanced algorithms for decision aids to reduce the effector to shooter timelines; demonstrate permissive airspace algorithms to improve coordination and reduce airspace deconfliction timelines; demonstrate sensor to shooter decision aid algorithms to incorporate non-kinetic effects into optimized recommendations across domains in support of future large scale combat operations; demonstrate scalable decision aid algorithms for processing increasing paired weapon-target solution sets in a dynamic battlespace. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase reflects the planned demonstration of networked lethality architecture and digital collaborative targeting interoperability.			
Title: Real Time Multi-Int Support to Terminal Guidance Targeting (RTMTG) ***Description:*** This project extends intelligence targeting capabilities to support updating and/or altering onboard terminal guidance of emerging munitions while in flight for enhanced lethality. This project seeks to augment/adjust munition target seeking (e.g. coordinate seeking technology and Terrain Contour Matching (TERCOM)) and target identification capabilities post-launch to ensure that steel meets target. ***FY 2025 Plans:*** Will extend the Army's Advanced Field Artillery Tactical Data System (AFATDS) target selection standards to address the data requirements of advanced target-seeking munitions to support planning, coordinating, controlling, and executing fires and effects; connect these munitions with continuous intelligence over watch to update onboard terminal guidance while in-flight; align current efforts with system developers for AFATDS updates, Joint Targeting Integrated Command and Coordination Suite (JTIC2S) software development and the Tactical Intelligence Targeting Access Node (TITAN) development to ensure data types and formats can be seamlessly exchanged machine-to-machine across security domains. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase to initiate effort for Real time Multi-Int Support to Terminal Guidance Targeting.	-	-	1.885
Accomplishments/Planned Programs Subtotals	-	5.655	9.987

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 0603116A / *Lethality Advanced Technology*	Project (Number/Name) DB2 / *Future Armaments Scalable 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
DB2: *Future Armaments Scalable Technologies*	-	-	2.313	6.123	-	6.123	8.061	6.352	13.148	12.067	0.000	48.064
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Future Armaments Scalable Technologies addresses the need to enhance the capability of existing and future critical enabling technologies. This effort will mature critical armament component technologies in the areas of energetics & warheads, fuzing & sensing, guidance navigation and control (GNC), materials & structures in order to support critical technology insertions into program requirements.

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

Work in this Project is performed by the United States Army Futures Command (AFC), U.S. Army Combat Capabilities Development Command (DEVCOM) Armaments Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Future Armaments Scalable Technology	-	2.313	6.123
Description: This effort will mature and demonstrate armament sub-components to improve end item performance of critical enabling technologies. ***FY 2024 Plans:*** Will mature novel energetic and electronic critical sub-component armament technologies for future integration into munitions and armament systems technology insertion. Will mature gun launched fuzing and sensing components, energetics, and advanced materials for future munition and weapon system capabilities that can survive extreme environments. ***FY 2025 Plans:*** Will mature armament specific components for electronic safe and arm, thermal batteries for fuzing, and novel countermeasure solutions; improve performance of fuzing and sensing components, and energetic materials through gun firing; optimize advanced materials and technologies for future munition and weapon system capabilities for survival in extreme environments. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding change reflects increase in hardware scale-up iterations in FY25 to support the maturation and optimization of multiple technologies.			
Accomplishments/Planned Programs Subtotals	-	2.313	6.123

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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** DB2 / *Future Armaments Scalable Technologies*

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 0603116A / *Lethality Advanced Technology*	Project (Number/Name) LR1 / *Long Range Sensing 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
LR1: *Long Range Sensing Adv Tech*	-	-	-	4.608	-	4.608	5.452	7.764	11.454	11.568	0.000	40.846
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Long Range Sensing Adv Tech is a new start within the Lethality Advanced Technology program in FY 2025.

A. Mission Description and Budget Item Justification

This project develops the modeling and simulation tools, physics-based models, virtual and scaled radio frequency (RF) hardware and software prototypes to validate and mature adaptive multi-function resource management, tracking and discrimination algorithms, and radar sensor technologies in support of Long Range Precision Fires.

Work in this Project complements Program Element (PE) 0602141A (Lethality Technology) / Project CG4 (Advanced Radar Concepts and Technologies).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Adaptive Radar Multifunction Manager (ARMM) Adv Tech	-	-	4.608
Description: Provides radar algorithms and software to enable communications between existing radar systems. Matures and demonstrates advanced techniques to enable adaptive multi- function resource management and expand the utility of current and future sensor technologies in support of Long-Range Precision Fires.			
FY 2025 Plans: Will mature and validate a system and physics model to conduct rapid performance investigations within a system in the loop environment emulator; exploit state-of-the-art software algorithm and determine impacts to counter fire radars; provide and mature resource management algorithms based on defined radar hardware utilization; further mature tracking and discrimination algorithms based on the system and physics model baseline.			
FY 2024 to FY 2025 Increase/Decrease Statement: Increase to initiate the Adaptive Radar Multifunction Manager Advanced Technology efforts.			
Accomplishments/Planned Programs Subtotals	-	-	4.608

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 0603116A / *Lethality Advanced Technology*	**Project (Number/Name)** LR1 / *Long Range Sensing Adv Tech*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A