Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	177.142	141.909	100.830	-	100.830	133.252	123.417	141.776	133.446	0.000	951.772
AE8: *Land-Based Anti-Ship Missile (LBASM) Advanced Tech*	-	9.690	15.698	12.150	-	12.150	-	-	-	-	0.000	37.538
AE9: *Low-Cost Tact Ext Range Missile (LC-TERM) Adv Tech*	-	9.710	-	-	-	-	-	-	-	-	0.000	9.710
AF2: *Long Range Maneuverable Fires (LRMF) Advanced Tech*	-	-	-	4.663	-	4.663	18.968	27.683	34.342	34.333	0.000	119.989
AG3: *Extended Range Cannon Artillery (ERCA) Adv Tech*	-	17.760	3.117	3.354	-	3.354	-	6.444	9.357	11.225	0.000	51.257
AG5: *Extended Range Artillery Munition Suite Adv Tech*	-	48.822	33.828	27.461	-	27.461	31.581	9.672	-	-	0.000	151.364
AG7: *Energetic Materials and Adv Processing Adv Tech*	-	2.061	2.096	1.954	-	1.954	-	-	-	-	0.000	6.111
BO8: *Long Range Precision Fires Advanced Tech (CA)*	-	60.000	48.000	-	-	-	-	-	-	-	0.000	108.000
BY2: *Advanced Hypersonic Technology*	-	29.099	39.170	36.517	-	36.517	63.854	49.315	74.637	74.617	0.000	367.209
CE9: *Armaments Advanced Technology**	-	-	-	-	-	-	-	9.359	13.274	13.271	0.000	35.904
CZ8: *PrSM Modular Payload Advanced Development*	-	-	-	14.731	-	14.731	18.849	20.944	10.166	-	0.000	64.690

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2023

A. Mission Description and Budget Item Justification

This Program Element (PE) matures and demonstrates Long Range Precision Fires (LRPF) technologies to destroy, neutralize, or suppress the enemy by cannon artillery and missile fire and enable integration of fire support assets into combined arms operations. Major Focus Areas for LRPF Science and Technology include: Missiles, Cannon Artillery, and Supporting LRPF Technologies covering Strategic, Operational and Tactical Lines of Effort. LRPF Missiles Advanced Development matures and demonstrates a broad range of Missile technologies to enhance Army integrated LRPF capabilities at extended range. Cannon Artillery Advanced Development matures and demonstrates critical technologies to increase range, precision, and both point and area effects for cannon artillery. Supporting LRPF

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603464A *I Long Range Precision Fires Advanced Technology*

Technologies Advanced Development matures and demonstrates a broad range of component technologies to address weapon cost drivers and enhance performance of future LRPF munitions and systems.

Research in this Program Element (PE) complements PE 0602147A Long Range Precision Fires Technology.

This PE is directly aligned to the Army Long Range Precision Fires (LRPF) Modernization Priority.

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

Research is performed by the United States Army Futures Command (AFC).

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	177.142	93.909	0.000	-	0.000
Current President's Budget	177.142	141.909	100.830	-	100.830
Total Adjustments	0.000	48.000	100.830	-	100.830
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	48.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	100.830	-	100.830

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: BO8: *Long Range Precision Fires Advanced Tech (CA)*		
Congressional Add: *Missile Rapid Demonstration Capability*	25.000	-
Congressional Add: *Program Increase - Composite Cannon Tubes*	5.000	-
Congressional Add: *Program Increase - Hypervelocity Projectile Extended Range*	20.000	25.000
Congressional Add: *Program Increase: Tactical Intercepting Vehicle for Access*	10.000	-
Congressional Add: *Extended Range Artillery Munitions Suite*	-	20.000
Congressional Add: *Maneuvering Submunitions for Precision Strike Missile*	-	3.000
Congressional Add Subtotals for Project: BO8	60.000	48.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603464A *I Long Range Precision Fires Advanced Technology*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Congressional Add Totals for all Projects	60.000	48.000

Change Summary Explanation

Fiscal Year 2023 (FY23) funding increase reflects the fact that the FY22 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) AE8 / *Land-Based Anti-Ship Missile (LBASM) Advanced Tech*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
AE8: *Land-Based Anti-Ship Missile (LBASM) Advanced Tech*	-	9.690	15.698	12.150	-	12.150	-	-	-	-	0.000	37.538
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires Modernization Priority capabilities by maturing and demonstrating critical technologies to detect, engage, and defeat moving land or maritime surface targets under all conditions.

Research in this Project complements Program Element (PE) 0602147A (Long Range Precision Fires Technology).

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Land Based Anti-Ship Missile (LBASM) Advanced Technology	9.690	15.125	12.150
Description: Matures and demonstrates technologies that enable high-mobility artillery rocket system (HIMARS) and multiple-launch rocket system (MLRS) rocket/missile artillery systems to destroy enemy air defenses in the land and the maritime domains. ***FY 2022 Plans:*** Will complete demonstrations of multi-mode seeker technologies in a surrogate missile system to obtain real world effect on seeker performance; complete analysis flight testing data and optimization of tracking, identification and aim-point algorithms; and begin maturation and integration of seeker technologies into the Precision Strike Missile (PrSM). ***FY 2023 Plans:*** Will end demonstrations and data evaluation of multi-mode seeker technologies in a surrogate missile system. Will mature concepts for re-factoring multi-mode seeker technologies into PrSM form factor. Will demonstrate multi-mode seeker technologies as part of the PrSM form factor through hardware-in-the-loop to verify operation when integrated with other PrSM components. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease in funding is due to completing development and fabrication of seeker components for flight testing on surrogate missile.			
Title: FY2022 SBIR/STTR Transfer	-	0.573	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** AE8 / *Land-Based Anti-Ship Missile (LBASM) Advanced Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	9.690	15.698	12.150

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) AE9 / *Low-Cost Tact Ext Range Missile (LC-TERM) Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
AE9: *Low-Cost Tact Ext Range Missile (LC-TERM) Adv Tech*	-	9.710	-	-	-	-	-	-	-	-	0.000	9.710
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires (LRPF) Modernization Priority capabilities by maturing and demonstrating propulsion technologies that enables extended range target engagements and navigation component technologies that reduce dependence on Global Positioning System (GPS) for precision effects. Additionally, technology development will support LRPF capabilities by investigating and developing critical technologies for the delivery of dedicated organic intelligence, surveillance and reconnaissance (ISR) payloads and attack capabilities via long range missiles. These long range missile delivered payloads will provide ISR that will be able to provide targetable data for area and point targets, and attack platforms for targets of opportunity.

Research in this Project complements Program Element (PE) 0602147A (Long Range Precision Fires Technology).

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Low-Cost Tactical Extended Range Missile (LC-TERM) Advanced Technology	9.710	-	-
Description: Mature and demonstrate propulsion technologies that enables extended range target engagement and navigation component technologies that reduce dependence on GPS for precision.			
Accomplishments/Planned Programs Subtotals	9.710	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) AF2 / *Long Range Maneuverable Fires (LRMF) Advanced Tech*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
AF2: *Long Range Maneuverable Fires (LRMF) Advanced Tech*	-	-	-	4.663	-	4.663	18.968	27.683	34.342	34.333	0.000	119.989
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires Modernization Priority capabilities by developing, maturing and demonstrating next generation Multi-Domain Operations extended range weapon system technology for Precision Strike Missile to increase survivability, penetration, and range in complex Anti Access/Area Denial (A2/AD) and denied environments. This Project also includes both the maturation and demonstration of advanced extended range missile technology and autonomous, unmanned launcher technology. The combination of these technologies offers the potential to dramatically increase force projection through increases in range, firepower, and magazine depth.

Research in this Project complements Program Element (PE) 0602147A (Long Range Precision Fires Technology).

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Long Range Maneuverable Fires (LRMF) Advanced Tech	-	-	4.663
Description: Matures and demonstrates next generation Multi-Domain Operations extended range weapon system technology for Precision Strike Missile to increase survivability, penetration, and range in complex A2/AD and denied environments. Includes maturation and demonstration of advanced extended range missile technology and autonomous, unmanned launcher technology.			
FY 2023 Plans: Will develop and mature combined cycle extended range missile propulsion engine and autonomous unmanned launcher designs and perform critical sub-system assessments in preparation for system level integration.			
FY 2022 to FY 2023 Increase/Decrease Statement: Funding realigned from PE 0602147A (Long Range Precision Fires Technology) / Project AF1 (Long Range Maneuverable Fires (LRMF) Technology) to mature and demonstrate missile propulsion and unmanned launcher technologies in support of multi-domain operations through extended range fires.			
Accomplishments/Planned Programs Subtotals	-	-	4.663

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** AF2 / *Long Range Maneuverable Fires (LRMF) Advanced Tech*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) AG3 / *Extended Range Cannon Artillery (ERCA) Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
AG3: *Extended Range Cannon Artillery (ERCA) Adv Tech*	-	17.760	3.117	3.354	-	3.354	-	6.444	9.357	11.225	0.000	51.257
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires (LRPF) Modernization Priority capabilities. This Project matures and demonstrates artillery technologies including light weight cannon and mount structures, high efficiency recoil cylinders, common lower power fire control hardware, improved fire control software, and improved sensor to shooter communications which will increase range and accuracy without an increase in platform weight. This Project also develops a collaborative environment with analytic capabilities to support Fires and Intel Soldiers.

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Extended Range Cannon Artillery Advanced Technology ***Description:*** This effort matures and demonstrates extended range Armament technologies including Cannons and Gun Mounts, novel integration for automation, improved fire control, ammunition handling, and improved sensor to shooter communications which will maximize range increases and enable increase precision with next generation munition and target acquisition technology.	14.754	-	-
Title: Synchronized High Op-Tempo (SHOT) Targeting for LRPF ***Description:*** This effort develops a collaborative environment with analytic capabilities to support Fires and Intel Soldiers in organizing planning products, and analytics that automate data discovery and development of targets and streamlining workflows that support Course of Action development. ***FY 2022 Plans:*** Will continue maturation of multi-INT intelligence algorithms capable of facilitating timely creation of intelligence to support long range fires missions. Will integrate with Fires Systems and aggregation with Advanced Field Artillery Tactical Data System (AFATDS) minimum data for effects. Will align to Program of Record (POR) data fabric concepts to automate aggregation of all relevant data necessary to identify target and present actionable fires options. ***FY 2023 Plans:***	3.006	3.003	3.354

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** AG3 / *Extended Range Cannon Artillery (ERCA) Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Will mature software and technical documentation including drawings, concept of operation, and standard operating procedures. I. Will mature and optimize draft training technology package concepts. Will demonstrate targeting cycle support technologies in an operationally relevant exercise environment. Will mature all technology components for validation and demonstration in an integrated targeting data system. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding change reflects the planned lifecycle of this effort.			
Title: FY2022 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.114	-
Accomplishments/Planned Programs Subtotals	17.760	3.117	3.354

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) AG5 / *Extended Range Artillery Munition Suite Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
AG5: *Extended Range Artillery Munition Suite Adv Tech*	-	48.822	33.828	27.461	-	27.461	31.581	9.672	-	-	0.000	151.364
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires Modernization Priority capabilities. This Project matures and demonstrates extended range artillery technologies including advanced projectile propulsion and guidance technologies to increase range and accuracy.

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Extended Range Artillery Munition Suite Advanced Technology	48.822	32.594	25.622
Description: Matures and optimizes long range unitary artillery projectile systems in the areas of range, precision, counter-measure, and payload technologies.			
FY 2022 Plans: Will mature and demonstrate long-range unitary artillery projectile systems to validate system modeling and simulation (M&S), architectures, and component capabilities. Will optimize configurations of projectile concepts to obtain increased performance; will continue to demonstrate integrated concepts for extended range artillery projectiles including: improved guidance algorithms, increased range, sensor optimization and integration. Will improve performance of extended range airframes designs for conventional and cargo munitions for advanced effects compatible with current and future artillery systems. Will continue to mature potential payload configurations for extended range airframe delivered effects that include: dispensing techniques, potential payloads and sub-munition survivability. Will validate post gun launch propulsion range extension technologies.			
FY 2023 Plans: Will continue demonstration of long-range unitary artillery projectile designs to validate system modeling and simulation (M&S), architectures, and component capabilities. Will validate configurations of projectile technologies for increased performance. Will demonstrate gun launched munition survivability and aeroballistic stability. Will mature advanced range extending propulsion technologies. Will complete demonstration of integrated technologies in extended range artillery projectiles including: guidance algorithms, sensors, propulsion, and range extension technologies. Will mature extended range airframe concepts for conventional and cargo munitions for advanced effects compatible with current and future artillery systems. Will demonstrate			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** AG5 / *Extended Range Artillery Munition Suite Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
payload concepts and configurations for extended range gun-launched airframe delivered effects to include sub-munition dispensing techniques and survivability. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decrease in accordance with Project plan to demonstrate a unitary warhead Extended Range Artillery Projectile.			
Title: Optionally Manned Artillery Advanced Technology ***Description:*** Develop automated cannon artillery solutions for fuze-setting, firing, as well as rearming to exponentially increase rate of fire and out-pace future near-peer, high operational-tempo (OPTEMPO) engagements, and reduce Soldier burden. ***FY 2023 Plans:*** Will mature technologies for OPTEMPO long range fires concepts to include: automated fuze setting, automated re-arm and re-supply, and fire control and diagnostics. Will mature modeling and simulation M&S concepts and analytical system trades to improve: the performance, effectiveness, and current and future operations of automated cannon artillery solutions. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding realigned from Program Element (PE) 0602147A (Long Range Precision Fires Technology) / Project AG4 (Extended Range Artillery Munition Suite Technology) to advance the Advanced Technology Development research on technology efforts to demonstrate automated cannon artillery solutions.	-	-	1.839
Title: FY2022 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	1.234	-
Accomplishments/Planned Programs Subtotals	48.822	33.828	27.461

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) AG7 / *Energetic Materials and Adv Processing Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
AG7: *Energetic Materials and Adv Processing Adv Tech*	-	2.061	2.096	1.954	-	1.954	-	-	-	-	0.000	6.111
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires Modernization Priority capabilities. This Project matures and demonstrates the performance of energetic materials ranging from medium caliber through large caliber weapons.

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Scale-up of Insensitive Energetic Materials	2.061	2.020	1.954
Description: This effort matures and demonstrates the performance and insensitivity of energetic materials ranging from 25mm medium caliber (direct fire) through 155mm large caliber (indirect fire) weapons. ***FY 2022 Plans:*** Will demonstrate advanced processing methods for increased scale and higher throughput of energetic ingredients and formulations; will demonstrate scale-up of energetic materials and advanced processing methods. ***FY 2023 Plans:*** Will optimize energetic materials concepts and advanced processing methods to increase scale of manufacture designs and obtain higher throughput of ingredients and formulations. Will validate high-energy explosive and propellant formulations with advanced ignition components in representative applications. Will mature and validate high energy density formulations and material characterization of various insensitive energetic materials. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding reduced as research in the area of propellant formulations and material characterization is reduced.			
Title: FY2022 SBIR/STTR Transfer	-	0.076	-
Description: Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** AG7 / *Energetic Materials and Adv Processing Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	2.061	2.096	1.954

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) BO8 / *Long Range Precision Fires Advanced Tech (CA)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
BO8: *Long Range Precision Fires Advanced Tech (CA)*	-	60.000	48.000	-	-	-	-	-	-	-	0.000	108.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Congressional Interest Item funding provided for Long Range Precision Advanced Technology.

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for Long Range Precision 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 2021	FY 2022
Congressional Add: Missile Rapid Demonstration Capability	25.000	-
FY 2021 Accomplishments: Conducted advanced research in Missile Rapid Demonstration Capability. Work executed by Army Futures Command.		
Congressional Add: Program Increase - Composite Cannon Tubes	5.000	-
FY 2021 Accomplishments: Conducted advanced research in Composite Cannon Tubes. Work executed by Army Futures Command.		
Congressional Add: Program Increase - Hypervelocity Projectile Extended Range	20.000	25.000
FY 2021 Accomplishments: Conducted advanced research in Hypervelocity Projectile Extended Range. Work executed by Army Futures Command. ***FY 2022 Plans:*** Congressional Interest Item funding provided for Hypervelocity Projectile Extended Range		
Congressional Add: Program Increase: Tactical Intercepting Vehicle for Access	10.000	-
FY 2021 Accomplishments: Conduct advanced research in Tactical Intercepting Vehicle for Access.		

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** BO8 / *Long Range Precision Fires Advanced Tech (CA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Work executed by Army Futures Command.		
Congressional Add: Extended Range Artillery Munitions Suite ***FY 2022 Plans:*** Congressional Interest Item funding provided for Extended Range Artillery Munitions Suite	-	20.000
Congressional Add: Maneuvering Submunitions for Precision Strike Missile ***FY 2022 Plans:*** Congressional Interest Item funding provided for Maneuvering Submunitions for Precision Strike Missile	-	3.000
Congressional Adds Subtotals	60.000	48.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) BY2 / *Advanced Hypersonic Technology*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
BY2: *Advanced Hypersonic Technology*	-	29.099	39.170	36.517	-	36.517	63.854	49.315	74.637	74.617	0.000	367.209
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Hypersonic Precision Fires Modernization Priority capabilities by developing and maturing critical technologies for strategic missiles. Technology development includes critical technologies to improve strategic missile components such as advanced structures and materials, thermal protection systems, navigation systems, data links, and seekers/terminal sensors.

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

Research in this Project is performed by the United States (U.S.) Army Futures Command (AFC) in coordination with the United States Army Rapid Capabilities and Critical Technologies Office (RCCTO).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Hypersonics Advanced Technology	29.099	37.740	36.517
Description: This effort matures and demonstrates new subsystems and components of a hypersonic weapon delivery system to defeat Anti Access/Area Denial (A2/AD) capabilities, suppress adversary Long Range Fires, and engage other payoff/ time critical targets.			
FY 2022 Plans: Will optimize candidate materials and material processing techniques to support critical material decisions for hypersonic weapons application; will mature simulation tools for optimization of vehicle flight performance; will mature guidance, navigation and control (GN&C) technology to dramatically reduce reliance on Global Positioning System (GPS) for navigation accuracy; will mature data links and advanced communication technologies; and will mature seeker / terminal sensor technologies.			
FY 2023 Plans: Will optimize candidate Common Hypersonic Glide Body (CHGB) thermal protection materials and material processing techniques to support critical material decisions for hypersonic weapon applications; will mature simulation tools for optimization of vehicle flight performance; will mature GN&C technology to reduce both size, weight, and power (SWAP) / packaging and reliance on GPS for navigation accuracy and will mature seeker / terminal sensor technologies.			
FY 2022 to FY 2023 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** BY2 / *Advanced Hypersonic Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
The funding decrease is attributed to the completion of the data link capabilities effort.			
Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)	-	1.430	-
FY 2022 Plans: Funding transferred in accordance with Title 15 USC ?638			
FY 2022 to FY 2023 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	29.099	39.170	36.517

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603464A / *Long Range Precision Fires Advanced Technology*	Project (Number/Name) CZ8 / *PrSM Modular Payload Advanced Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
CZ8: *PrSM Modular Payload Advanced Development*	-	-	-	14.731	-	14.731	18.849	20.944	10.166	-	0.000	64.690
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year 2023 (FY23) funding is realigned from Program Element (PE) 0603464A (Long Range Precision Fires Advanced Technology) / Project AE8 (Land-Based Anti-Ship Missile (LBASM) Advanced Tech).

A. Mission Description and Budget Item Justification

This Project directly supports Long Range Precision Fires Modernization Priority capabilities by maturing and demonstrating critical technologies for autonomous, Cluster Munition policy compliant, enhanced lethality payloads deployed from Precision Strike Missile to autonomously and cooperatively find and engage the full spectrum of deep moved, moving, dispersed, and poorly located targets in areas with contested access at extended ranges.

Research in this Project complements Program Element (PE) 0602147A (Long Range Precision Fires Technology).

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

Research in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Precision Strike Missile (PrSM) Advanced Development/PrSM Modular Payload	-	-	14.731
Description: Mature and demonstrate critical technologies for the delivery of distributed and enhanced lethality capabilities via extended range missiles. Technology examples include: sensor and associated signal processing technologies for target acquisition, identification, and engagement; datalink and communications technologies to transmit targetable data; compact propulsion technologies to enable dwell time on station; payload dispensing technologies for deploying these payloads from high speed long range missiles; and advanced extended range missile propulsion and guidance technologies.			
FY 2023 Plans: Will continue enhanced lethality payload designs, initiate sub-system testing verifying expected component performance, begin development of advanced extended range missile propulsion and guidance technologies, and update high fidelity simulations to assess integrated missile performance.			
FY 2022 to FY 2023 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603464A / *Long Range Precision Fires Advanced Technology*	**Project (Number/Name)** CZ8 / *PrSM Modular Payload Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding realigned from Program Element (PE) 0603464A (Long Range Precision Fires Advanced Technology) / Project AE8 (Land-Based Anti-Ship Missile (LBASM) Advanced Tech) to mature and demonstrate technologies for the next development and increments for the PrSM enhancements.			
Accomplishments/Planned Programs Subtotals	-	-	14.731

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A