Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*							
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	-	50.648	63.042	48.316	-	48.316	44.660	44.902	44.994	45.216	0.000	341.778
297: *Mun Survivability & Log*	-	14.343	21.842	23.158	-	23.158	18.592	18.630	18.508	18.600	0.000	133.673
858: *Army Explosives Safety Management Program*	-	0.413	1.418	1.509	-	1.509	1.542	1.567	1.596	1.595	0.000	9.640
859: *Life Cycle Pilot Process*	-	22.487	20.501	5.797	-	5.797	5.812	5.828	5.825	5.882	0.000	72.132
F21: *NATO Ammo Evaluation*	-	0.722	0.514	0.766	-	0.766	0.769	0.768	0.768	0.775	0.000	5.082
F24: *Conventional Munitions Demil*	-	12.683	18.767	17.086	-	17.086	17.945	18.109	18.297	18.364	0.000	121.251

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continuing technology investigations by providing a coordinated Tri-Service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment.

Project 297 - Munitions Survivability & Logistics: This Project supports the future force by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, ammunition management and asset visibility, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective and efficient solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munition stocks could cripple the force, jeopardize the mission, and result in high loss of life. This Project mitigates vulnerabilities and ensures a survivable fighting force.

Project 858 - Army Explosives Safety Management Program: This Project establishes, validates or modifies explosives technical safety requirements per Department of Defense Manual 6055.09 and Department of the Army Pamphlet 385-64, Ammunition and Explosives Safety Standards. Project activities promote Research, Development, Test, and Evaluation (RDTE) of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety and welfare of the general public (with highest priority directed to combat theater of operations).

Project 859 - Life Cycle Pilot Process: This Project supports the implementation of the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan through technology investigations, model based process controls, pilot prototyping, and industrial assessments. It will assess life cycle production capabilities required for all ammunition families, address design for manufacturability to facilitate economical production, identify industrial and technology requirements, and address the ability of the production base to rapidly and cost effectively produce quality products. Cost reduction is an important part of the Life Cycle Pilot Process (LCPP). LCPP provides the resources to prototype critical technologies and develop the knowledge base to establish cost effective, environmentally safe and modern

production processes in support of the munitions Industrial Base transformation. In addition, the LCPP program addresses Single Point Failures (SPFs) / No Source of supply within the National Technology Industrial Base (NTIB). LCPP provides support to reduce supply chain risk by investigating, developing and evaluating additional sources of supply for a known SPF.

Project F21: North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. This Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). In addition, this Project supports small caliber ammunition, 50mm ammunition, 40mm grenade munitions, medium caliber cannon ammunition, and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy, and general product improvements. This Project also supports the standardization and interchangeability of legacy and new production United States (US) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/ compatibility under the auspices of international agreements to include NATO working groups, the Joint Ballistics Memorandum of Understanding (JBMOU), and information/ data exchange agreements. Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of US indirect fire weapon and munition products to support United States industrial base production and affordable Department of Defense pricing through increased economies of scale. Fiscal Year 2023 funding will support NATO and JBMOU artillery and small arms ammunition interchangeability group meetings, documentation, and test operations.

Project F24: Conventional Munitions Demilitarization (Demil): The Conventional Munitions Demilitarization technology Project supports the SMCA responsibility per Department of Defense Instruction (DoDI) 5160.68 to plan, program, budget and fund a Joint Service Research and Development (R&D) program that develops capability and capacity as well as technology and facilities to support the SMCA mission to demil and dispose of conventional ammunition stored in the SMCA Resource, Recovery and Disposition Account (B5A). The program goals include SMCA efforts to increase efficiencies and effectiveness to reduce the demil stockpile; reduce processing costs including packaging, handling and crating; and increase capacity through improved demilitarization capabilities and processes. Project F24 includes activities: (1) to establish requirements and develop processes to focus investments, assess capabilities, analyze alternatives, and recommend and implement R&D projects; (2) to improve products and processes that support existing capabilities; (3) to develop or improve demil methods and processes related to advance the primary demilitarization core thrust areas of destruction, disassembly, removal, resource recovery and recycling, and waste stream treatment; (4) to ensure safe and environmentally acceptable demil operations; (5) to transition R&D products to United States Army depots or plants as well as commercial facilities performing demil; and (6) to mitigate risk and close-out project activities.

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 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605805A *I Munitions Standardization, Effectiveness and Safety*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	55.648	43.042	0.000	-	0.000
Current President's Budget	50.648	63.042	48.316	-	48.316
Total Adjustments	-5.000	20.000	48.316	-	48.316
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	20.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.000	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	48.316	-	48.316

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 297: *Mun Survivability & Log*		
Congressional Add: *Polymer Case Ammunition*	-	5.000
Congressional Add Subtotals for Project: 297	-	5.000
Project: 859: *Life Cycle Pilot Process*		
Congressional Add: *Program increase - foamable celluloid materials*	5.000	5.000
Congressional Add: *Program increase - neutron radiography technology*	5.000	-
Congressional Add: *Program increase - industrial base resiliency initiative*	8.000	5.000
Congressional Add: *Program increase- Advanced Ammunition Materials & Manufacturing Technologies; AM for High Temperature Alloys*	-	5.000
Congressional Add Subtotals for Project: 859	18.000	15.000
Congressional Add Totals for all Projects	18.000	20.000

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 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 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 297 / *Mun Survivability & Log*	

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
297: *Mun Survivability & Log*	-	14.343	21.842	23.158	-	23.158	18.592	18.630	18.508	18.600	0.000	133.673
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the future force by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, ammunition management and asset visibility, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective and efficient solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munition stocks could cripple the force, jeopardize the mission, and result in high loss of life. This Project mitigates vulnerabilities and ensures a survivable fighting force while providing leap ahead technology to meet the Multi-Domain Operations and the priorities identified by the Long Range Precision Fires & Solider Lethality Cross Function Teams.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Munitions Predictive Life	1.352	1.977	3.377

Description: This activity will demonstrate technologies and algorithms that can help assess munitions serviceability based upon aggregate environmental exposures, system cycling and munition degradation models. The activity will provide life cycle management tools for risk mitigation strategies, while reducing testing, inspection & surveillance required as well as improving weapon system reliability and warfighter effectiveness. This Project will specifically assess munitions serviceability based upon aggregate environmental exposures, system cycling and munition degradation models during the tactical distribution of munitions after munitions are re-configured to distribution focused multi-DODIC consolidation packs.

FY 2022 Plans:

Develop an active ruggedized temperature/humidity/shock/vibration exposure sensor that integrates with a prototype flatrack based consolidator under development for 155mm ammunition, and will enable monitoring of the operational exposure thresholds during transport to Tactical Resupply point. Develop an active ruggedized environmental exposure sensor for ammunition that integrates with emerging hybrid ammunition packaging containers/consolidators of dismounted infantry items to monitor operational exposure thresholds during transport through last tactical mile. Develop sensor configurations to monitor environmental exposure of emerging LRPF propellant components, fuze types, and projectile configurations. Continue recurring

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
market surveys of emerging passive Radio Frequency Identification technologies and active and passive environmental sensors for legacy munitions, select and evaluate viable candidates. ***FY 2023 Plans:*** Investigate capabilities for monitoring ammunition exposures to temperature/humidity/shock/vibration that will ensure exposure thresholds are not breached and that the ammunition is viable for use, thereby improving operational resiliency. The effort will investigate capabilities that will integrate with developmental tactical 155mm ammunition storage and transportation systems to mitigate the detrimental effects of these exposures to the operational availability of the weapon platform. This capability may be integrated into existing vehicles and conveyances or integrated into emerging systems, and will feed data about existing and future Long Range Precision Fires (LRPF) ammunition components (ammunition, propellant, fuzes, and packaging) into emerging tactical ammunition management systems to ensure only viable ammunition is tasked for use. Conduct studies on the degradation of 155mm propellant due to exposure to regional/seasonal humidity levels (future Extended Range Canon Artillery (ERCA) systems will likely store propellant out-of-container) to provide understanding of the impact of measured exposures. Develop an active ruggedized environmental exposure sensor for ammunition that integrates with emerging hybrid ammunition packaging containers/consolidators of dismounted infantry items to monitor operational exposure thresholds during transport through last tactical mile. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase program amount represents residual change to FY 2022 budget.			
Title: Insensitive Munitions (IM) Integration Program ***Description:*** Demonstrate multiple IM technologies and integrate into end item(s) to improve munitions survivability and warfighter safety. IM Technologies, using State-of-the-Art materials, will be developed in the areas of warhead, propulsion and propellants, explosives, packaging, and barriers. In addition, modeling and simulation will be used to reduce development and testing costs. Efforts will increase the number of IM compliant ammunition items fielded to mitigate munitions reaction to unplanned stimuli such as fire, fragments, enclosed heat build-up (cook-off), bullets, adjacent munitions reaction (sympathetic detonation), and shape charge jet attacks. ***FY 2022 Plans:*** Complete demonstration of medium caliber, foamed celluloid cartridge cases for improved response to shock and thermal threats in support of NGCV, FVL and Soldier Lethality SL modernization priorities. Complete fragment impact and ballistic testing of new igniter formulations to replace Benite in 120mm tank munitions. Initiate final testing of the M433E1 40MM Cartridge to integrate explosive technology along with warhead, packaging venting and impact mitigation technologies. Complete testing of DNP based formulation in 120mm mortar for improved IM and lethality to support SL modernization priority. Complete characterization tests of Titan II samples fabricated using Lab RAM technology to coat nanonitramine formulations and for improved shock sensitivity at	5.720	6.564	6.542

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
reduced cost to support LRPF and AMD priorities. Demonstrate optimized plastic containers for large caliber munitions to mitigate both fast and slow cook-off events. Conduct impact testing of the deflection plate technology for an integrated packaged design. Demonstrate container heat management technology to mitigate cook-off events in mortar systems. ***FY 2023 Plans:*** Demonstrate Slow Cook Off (SCO) mitigation using container heat management technology with live munitions. Demonstrate Sealed Seam packaging venting technology to improve artillery and tank containers? response to thermal events in support of Long Range Precision Fire (LRPF) modernization priority. Continue Insensitive Munition (IM) testing of the M433E1 40MM Cartridge to integrate explosive technology along with warhead, packaging venting and impact mitigation technologies in support of Next Generation Combat Vehicle (NGCV) priorities. Utilize completed characterization testing to down-select DNP formulation for initial engineering IM testing in end item to support Soldier Lethality (SL) modernization priority. Initiate engineering IM and performance tests of Titan II formulation to support Long Range Precision Fires (LRPF) and Air and Missile Defense (AMD) priorities. Continue demonstration of PAX-64 as a replacement for PBXN-12 in mortar IM auxiliary charges for improved Fragment Impact (FI) response. Initiate gun firings of new igniter formulations to replace Benite in 120mm tank munitions. Develop propellant coating technology for improved cook-off and impact threats. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease program amount represents residual change to FY 2022 budget.			
Title: Improved Munitions Packaging ***Description:*** This activity will demonstrate upgrades to existing packaging components and materials to improve legacy ammunition survivability. These upgrades will enhance ammunition survivability and reliability, improve field ammunition operations, and improve packaging. This activity will also demonstrate intermediate packaging concepts and components to improve survivability once removed from bulk packs for finer grain distribution through the BCT. ***FY 2022 Plans:*** Develop packaging configuration/consolidation prototypes and perform engineering testing for the 155mm family of extended range components for the transportation and resupply of extended range cannon artillery. Conduct pallet testing as part of the undervalued hardwood program. Assess viability of packaging concepts for transporting 155mm ammunition items forward of the Ammunition Storage Point to the Tactical Resupply Point to meet emerging Long Range Precision Fire CFT modernization requirements. Investigate ammunition container lids, latches, security seal, tie downs, palletization methods and environmental sealing techniques that provide more efficient automation opportunities for resupply. Develop hybrid light weight small arms packaging concepts to meet Soldier Lethality modernization resupply requirements. Conduct qualification testing on selected ammo packaging concepts that provide desired functional characteristics at acceptable unit cost supporting the JPEO Armaments	2.012	2.600	2.851

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
& Ammunition portfolio of items. Develop packaging configurations to protect against environmental effects on emerging LRPF propellant components, fuze types, and projectile configurations. ***FY 2023 Plans:*** Complete engineering and environmental testing on low cost cylindrical container prototypes that incorporate novel venting technology with application for 120mm tank and 155mm extended range ammunition components. Conduct performance testing of ammunition pallets constructed from undervalued hardwoods. Complete cost benefit analysis and implement via a revision to the pallet specification. Develop functional prototype packaging components and ?automation friendly? technologies (e.g. lids, latches, security seal, tie downs, palletization methods and environmental sealing techniques) to enable ammunition handling forward of the Ammunition Storage Point to compliment emerging Long Range Precision Fire CFT modernization initiatives. Continue to investigate hybrid light weight small arms packaging concepts to meet Soldier Lethality modernization resupply requirements. Conduct comparative testing to evaluate ammo packaging technologies intended to reduce the packaging unit cost in support of the JPEO Armaments & Ammunition portfolio of small caliber items. Support qualification testing on packaging prototypes and configurations designed to protect legacy large caliber propellant, fuze and projectile components against environmental effects and other stimuli, as required to reflect use cases defined by the emerging CONOPS for ERCA. Assess the viability of adding 2-dimensional bar codes to individual PM Cannon Artillery System items and unitized packaging to include projectiles, fuzes, and propellant charges to prepare for future ammunition handling automation. Evaluate redesigned ammunition stowage mechanisms developed for the M992A3 Carrier Ammunition Tracked (CAT) for soldier efficiencies, improved resupply/ rearm processes, and ammunition survivability and readiness. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase program amount represents residual change to FY 2022 budget.			
Title: Ammo Provider ***Description:*** This activity demonstrates technologies that will assure a survivable munitions logistics system by increasing distribution velocity and protecting ammo storage areas. Technology areas to be investigated include ammunition asset visibility, including environmental sensors, marking technologies, and supply chain modeling; ammunition management, including improvements in stockpile surveillance and condition based management; sustainment, including pre-configured loads (soldier to unit size); field ammo reconfiguration capability, robotic handling, and improved load building capability; and force protection, including site planning software and field storage protection. All research and development initiatives will be supporting the Long Range Precision Fires & Solider Lethality Cross Functional Teams (CFTs) and the multi domain operations modernization objectives that consume, store or transport/distribute munitions and munition components in the maneuver formations. ***FY 2022 Plans:***	5.259	5.086	5.388

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Develop a suite of ammunition logistics enablers to meet the Long Range Precision Fire CFT modernization objectives for the Extended Range Cannon Artillery to include 1) Extend the current CADES to optimize configuration, location, information, consumption, and planning/forecasting for all ammo items, 2) Adapting the CLBT to anticipatory planning for allocation of ammunition demand with FSC transportation assets, 3) Enhance the MSS capability to provide explosive safety vehicle separation distances for any military vehicle uploaded with ammo, 4) Develop high fidelity models to fully assess emerging Field Artillery Automated Resupply (FAAR) concepts and the resupply and retrograde benefits that may accrue through deployment. 5) Develop ammo handling enablers to meet LRPF CFT driven requirements for increased ammunition distribution velocity and capabilities to reduce crew burden while increasing upload rates during ammunition resupply operations. Develop scoring metrics to determine operational benefits of variable levels of automation applied to ERCA resupply. Develop ammo handling enablers to meet Soldier Lethality CFT modernization objectives of improved ammunition distribution velocity and a more responsive ammunition supply chain to meet dismounted infantry lethality/mobility requirements. Conduct an extended user evaluation of MSS with the US Marines to validate all operational and interface requirements have been met. Provide and support CADES technology transition to migrate Artificial Intelligence planning tools to integrate within TAMS to enable tactical ammunition mission command. Develop Unmanned Logistics System - Air payload configuration enablers and anticipatory planning functions to reduce cycle time of routine small unit resupply operations.			
FY 2023 Plans: Investigate emerging technologies that may contribute to a suite of ammunition logistics enablers to meet the CFT modernization objectives for Long Range Precision Fires (LRPF) Extended Range Cannon Artillery and Soldier Lethality (SL) Small Unit Resupply priorities. These enablers include objectives to provide for the optimization of requisitions, geo-location of inventory, real-time consumption, and planning/forecasting for all ammo items, adapting multi-class configured loads to available transportation conveyances for anticipatory planning for allocation of ammunition distribution assets. Investigate explosive siting techniques to complete explosive safety separation distances for selected military combat and combat service support vehicles uploaded with a basic load or ammo cargo. Refine existing high fidelity models to reflect LRPF Fire Faster concepts and the resupply and retrograde benefits that may accrue through deployment. Assess new concepts for ammo handling interim/ post depot pack configuration enablers to meet LRPF CFT supply chain through-put requirements to improve ammunition distribution velocity through the Tactical Ammunition Micro-services Management (TAMMS). Revise scoring metrics and validate the operational benefits of the Fire Faster integrated automation through advanced System Engineering techniques. Develop a strategy for a responsive ammunition supply chain concept, integrated through Leaderboard, to meet dismounted infantry requirements as defined by the SL CFT Small Unit Resupply initiative. Conduct an extended user evaluation of the Army Futures Command (AFC) Software Factory first iteration and cloud hosting of Munitions Survivability System with the US Marines to validate all operational and interface requirements have been met.			
FY 2022 to FY 2023 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Increase program amount represents residual change to FY 2022 budget.			
Title: P2 Supply Chain Assured Munitions ***Description:*** Army added funds to update legacy chemical specifications and expand the Industrial Base Analysis Tool (IBAT) software to illuminate kinetic weapons supply chains involving critical chemicals and raw materials used in missiles and munitions. ***FY 2023 Plans:*** Funds will be used to develop a deeper understanding of the risks to the weapons and munitions supply than is presently afforded by the IBAT. Commercial software application tools will be employed were appropriate to identify and document previously unknown supply chain risks to be mitigated. Funds will also be used to modernize the specifications of designated critical materials in order to expand the potential supplier base by eliminating obsolete test methods and modify requirements that are impediments to a viable domestic supplier base. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to Army adding funds to update legacy chemical specifications and to expand Industrial Base Analysis Tool (IBAT)	-	-	5.000
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Adjustment for SBIR/STTR transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment for SBIR/STTR transfer	-	0.615	-
Accomplishments/Planned Programs Subtotals	14.343	16.842	23.158

	FY 2021	FY 2022
Congressional Add: Polymer Case Ammunition	-	5.000
FY 2022 Plans: Develop, evaluate and mature alternative ammunition cartridge case solutions including hybrid-polymer case ammunition technology. Conduct adhesive case study. Conduct demilitization recycling emissions pollution abatement study. Perform reliability test for .50 caliber ammunition. Obtain cold forming equipment in order to make hybrid-polymer case head, as a future cost saving effort. Deliver prototype cartridges in order to study temperature during firing.		
Congressional Adds Subtotals	-	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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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 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 858 / *Army Explosives Safety Management Program*	

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
858: *Army Explosives Safety Management Program*	-	0.413	1.418	1.509	-	1.509	1.542	1.567	1.596	1.595	0.000	9.640
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project establishes, validates or modifies explosives technical safety requirements per Department of Defense Pamphlet 385-64, Ammunition and Explosives Safety Standards. Project activities promote Research, Development, Test, & Evaluation (RDTE) of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety and welfare of the general public. FY 2021 funding will support continued testing, validation, and regulatory integration for permanent, temporary and mobile ammunition & explosives (A&E) facilities as well as operations. The Defense Ammunition Center/US Army Technical Center for Explosives Safety (DAC/USATCES) will team with and sponsor agencies (Joint Service, Academia, and Contractor) to improve the effectiveness of identifying, analyzing, and apply risk acceptance to ammunition and explosive environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Risk based explosives safety criteria ***Description:*** Development of risk based explosives safety criteria that will aid commanders and safety personnel in the transition from regulation to risk management. ***FY 2022 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences ***FY 2023 Plans:*** Efforts continue explosives testing and support of hazard research and exposure consequences in support of research and development efforts on Army installations. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase program amount represents residual change to FY 2022 budget.	0.050	0.268	0.310
Title: Development of enhanced protective structure designs ***Description:*** Develop enhanced protective structure designs that improve the survivability of Army personnel, facilities and equipment. ***FY 2022 Plans:*** Will continue explosives testing and support for improving protective construction designs. ***FY 2023 Plans:***	0.213	0.904	0.977

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 858 / *Army Explosives Safety Management Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Efforts continue explosives testing and support for improving protective construction designs in support of research and development efforts on Army installations. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase program amount represents residual change to FY 2022 budget.			
Title: Development of explosive safety tools ***Description:*** Develop explosive safety tools for use by Army personnel. Explosive safety tools allow commanders and safety personnel to make explosive safety decisions using risk management methodologies. ***FY 2022 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2023 Plans:*** Efforts continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions in support of research and development efforts on Army installations. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase program amount represents residual change to FY 2022 budget.	0.150	0.195	0.222
Title: SBIR/STTR transfer ***FY 2022 Plans:*** Adjustment for SBIR/STTR transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment for SBIR/STTR transfer	-	0.051	-
Accomplishments/Planned Programs Subtotals	0.413	1.418	1.509

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 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 859 / *Life Cycle Pilot Process*	

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
859: *Life Cycle Pilot Process*	-	22.487	20.501	5.797	-	5.797	5.812	5.828	5.825	5.882	0.000	72.132
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To execute the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan, this project supports: material and manufacturing technology investigations and assessments; pilot prototype processes; technology and process assessment for industrial base safety, security and environmental concerns; mitigation of supply chain risks by assessing alternative processes and materials for Army's legacy products. Projects support overall research, development and modernization efforts towards rapid technological advancements and the changing character of war. Specifically, this project assesses life cycle production capabilities required for all ammunition families; addresses design for manufacturability to facilitate economical production; identification of industrial and technology requirements; addresses production base concerns that may impact availability for cost effective quality products and assessment of security capability gaps to ensure robust manufacturing supply chain processes. In addition, the Life Cycle Pilot Process (LCPP) program addresses Single Point Failures (SPFs) and no source of supply within the National Technology Industrial Base (NTIB). LCPP provides support to reduce supply chain risk by investigating, developing and evaluating additional sources of supply for a known SPF. LCPP provides the resources to prototype critical technologies, improve security processes and requirements; develop a knowledge base to establish cost effective, environmentally safe and modern production processes in support of transforming the Industrial Base.

Funding will support various efforts to reduce manufacturing and production costs; bridge technology transition between research and production; and assess security vulnerabilities within the NTIB. Program will continue to investigate and evaluate manufacturing technology; assess improved security processes; alternative materials and processes to address supply chain risks and resiliency concerns.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Product Cost Thrust Area	0.814	0.989	1.980
Description: This thrust area seeks out new opportunities to reduce overall cost of armaments and ammunition components. Efforts will review and analyze legacy manufacturing processing for opportunities to integrate improved technology that can lead to increased operator safety and materials to lean manufacturing processes to reduce overall unit cost and utilization of greener materials.			
FY 2022 Plans: Continue to evaluate and investigate mature manufacturing process and technologies to improve the efficiencies at the GOCO facilities. Assess alternative materials and alternative production processes to reduce end item and production costs for transition to the Army's Industrial Base. Efforts include but not limited to: automating load, assemble and pack operations for artillery /			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 859 / *Life Cycle Pilot Process*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
propulsion charge systems, assess alternative materials for fielded propulsion end items to cost avoid potential shutdowns and failure analyses. ***FY 2023 Plans:*** Continue to evaluate and investigate mature manufacturing process, automation of processes and technologies to improve the efficiencies and reduce cost of operations at the GOCO facilities. Assess alternative materials/components and alternative production processes to reduce end item and production costs for transition to the Army's Industrial Base. Efforts are aligned with the Army's Long Range Precision Fires Cross Functional Team (CFT) include but not limited to: automating load, assemble and pack operations for artillery and propulsion charge systems. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increase in program priorities due to increase requirements in single point failure and product cost thrust areas.			
Title: Single Point Failures (SPFs) ***Description:*** This thrust area seeks to mitigate single source and no source of supply to armaments and ammunition manufacturing operations. Thrust area tests or evaluates alternative materials and processes to mitigate SPFs. These efforts are part of the overall strategy to reduce the number of SPFs in the NTIB. Additionally, thrust area efforts will address ammunition manufacturing capability shortfalls. This area leverages RDTE accomplishments and product knowledge to satisfy manufacturing requirements. ***FY 2022 Plans:*** Assess technologies and material alternatives to mitigate single source and no source of supply for in production end items and end item components. Investigative findings will follow similar technology transition / transfer paths to the industrial base or product PM. Efforts include but not limited to: investigate alternative base constituents for obscurant end items. ***FY 2023 Plans:*** FY2023 will continue to assess and test the technologies and material alternatives to mitigate single source and no source of supply for in production end items and end item components. Investigative findings will follow similar technology transition / transfer paths to the industrial base or product PM. Efforts are aligned with the Army's Solider Lethality CFT include but not limited to investigating alternative constituents for end items. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Program increase amount represents a residual amount for FY 2023 budget.	1.262	0.315	0.325
Title: Manufacturing Technology for Industrial Base Transformation ***Description:*** This thrust area matures ammunition manufacturing technologies, processes to enhance manufacturing, security capabilities of legacy armaments and ammunition manufacturing operations. This thrust area will integrate the framework	2.411	3.996	3.492

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
for digital engineering concepts to pilot and transition processes to affected industrial base for armaments and ammunition manufacturing operations. ***FY 2022 Plans:*** Continue investigation and pilot mature manufacturing technologies and processes towards transforming the Army's Industrial Base. Assessment of improved energetic manufacturing for back-end propellant operations; modernize explosive load, assemble and pack operations for transition to GOCO facility, investigate manufacturing technologies to reduce energetic waste, provide safer manufacturing operations and improve manufacturing efficiencies. ***FY 2023 Plans:*** Efforts include supporting the Army's vision for transformational change across the ammunition industrial base to ensure modernized manufacturing methodologies, processes and equipment. Efforts are aligned with Long Range Precision Fires and Solider Lethality CFTs through assessment of modernized explosive load, assemble and pack operations for transition to GOCO facility; digital technology integration strategies, investigations of robotic and automated manufacturing technologies to reduce energetic waste, provide safer manufacturing operations and assessment of manufacturing efficiencies by investigating flexible manufacturing lines in support of but not limited to production of munition energetic components ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Program decrease amount represents a residual amount for FY 2023 budget.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Adjustment for SBIR/STTR transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment for SBIR/STTR transfer	-	0.201	-
Accomplishments/Planned Programs Subtotals	4.487	5.501	5.797

	FY 2021	FY 2022
Congressional Add: Program increase - foamable celluloid materials	5.000	5.000
FY 2021 Accomplishments: Foamable celluloid products provides a lighter weight, robust product at a lower cost than the currently fielded items. This effort continues development of Foamable Celluloid manufacturing		

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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	FY 2021	FY 2022
technologies and evaluation of munition components made out of foamable celluloid at various funding and maturity levels. ***FY 2022 Plans:*** Foamable celluloid products provides a lighter weight, robust product at a lower cost than the currently fielded items. This effort continues development of Foamable Celluloid manufacturing technologies and evaluation of munition components made out of foamable celluloid at various funding and maturity levels.		
Congressional Add: Program increase - neutron radiography technology ***FY 2021 Accomplishments:*** Effort will improve reliability, dependability and robustness to mature digital imaging technology; and explore delivery and installation of high energy photon technology to the Munitions Industrial Base.	5.000	-
Congressional Add: Program increase - industrial base resiliency initiative ***FY 2021 Accomplishments:*** Effort will develop technology to strengthen energy security and resiliency for the Army?s munition industrial base. ***FY 2022 Plans:*** Effort will develop technology to strengthen energy security and resiliency for the Army's munition industrial base.	8.000	5.000
Congressional Add: Program increase- Advanced Ammunition Materials & Manufacturing Technologies; AM for High Temperature Alloys ***FY 2022 Plans:*** Investigate critical materials and techniques assessing Manufacturing solutions of high temp metal alloys and ceramics to meet Modernization and Readiness Priorities.	-	5.000
Congressional Adds Subtotals	18.000	15.000

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 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) F21 / *NATO Ammo Evaluation*	

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
F21: *NATO Ammo Evaluation*	-	0.722	0.514	0.766	-	0.766	0.769	0.768	0.768	0.775	0.000	5.082
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. This Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). In addition, this Project supports small caliber ammunition, 50mm ammunition, 40mm grenade munitions, medium caliber cannon ammunition, and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy, and general product improvements. This Project also supports the standardization and interchangeability of legacy and new production United States (US) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/ compatibility under the auspices of international agreements to include NATO working groups, the Joint Ballistics Memorandum of Understanding (JBMOU), and information/ data exchange agreements. Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of US indirect fire weapon and munition products to support United States industrial base production and affordable Department of Defense pricing through increased economies of scale. Fiscal Year 2023 funding will support NATO and JBMOU artillery and small arms ammunition interchangeability group meetings, documentation, and test operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: New Ammo Design Qualification & NATO Mission Support	0.300	0.279	0.324
Description: This activity ensures complete interchangeability of small caliber, automated cannon-caliber, 40mm grenade ammunition, air burst capable 30mm/40mm ammunition, 50mm ammunition, large caliber ammunition and weapons among NATO countries to achieve the associated logistic, strategic and tactical advantages. ***FY 2022 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2023 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase will resource additional testing activities to ensure interoperability of technologies amongst Allied Nations.			
Title: Joint Ballistics Program Support	0.422	0.217	0.442

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: The activity supports the maturation, validation, and risk reduction of battlefield interchangeability/ compatibility and associated enabling technologies between domestic US and NATO/ Allied Nations indirect fires weapons and munitions. ***FY 2022 Plans:*** FY 2022 funding supports interoperability testing and interchangeability group meetings. ***FY 2023 Plans:*** FY 2023 will continue interoperability testing and interchangeability group meetings. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase will resource additional testing activities to ensure interoperability of technologies amongst Allied Nations.			
Title: Small Business Innovation Research (SBIR)/ Small Business Technology Transfer (STTR) ***FY 2022 Plans:*** FY 2022 funding to be assess per SBIR Title 15 USC ?638(f)(1) and STTR Title 15 USC ?638(f)(1)(A). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment for SBIR/STTR transfer	-	0.018	-
Accomplishments/Planned Programs Subtotals	0.722	0.514	0.766

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 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) F24 / *Conventional Munitions Demil*	

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
F24: *Conventional Munitions Demil*	-	12.683	18.767	17.086	-	17.086	17.945	18.109	18.297	18.364	0.000	121.251
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Conventional Munitions Demilitarization Technology Project supports the Single Manager for Conventional Ammunition (SMCA) responsibility per Department of Defense Instruction (DoDI) 5160.68 to plan, program, budget and fund a Joint Service research and development program that develops capability and capacity as well as technology and facilities to support the SMCA mission to demilitarize and dispose of conventional ammunition stored in the SMCA Resource, Recovery and Disposition Account (B5A). Project goals include SMCA efforts to increase efficiencies and effectiveness to reduce the demil stockpile; reduce processing costs including packaging, handling and crating; and increase capacity through improved demil capabilities and processes. Project F24 includes several activities: (1) to establish requirements and develop processes to focus investments, assess capabilities, analyze alternatives, and recommend and implement RDT&E projects; (2) to improve products and processes that support existing capabilities; (3) to develop or improve demil methods and processes related to advance the primary demilitarization core thrust areas of destruction, disassembly, removal, resource recovery and recycling, and waste stream treatment; (4) to ensure safe and environmentally acceptable demil operations; (5) to transition RDT&E products to United States Army depots or plants as well as commercial facilities performing demil; and (6) to mitigate risk and close-out Project activities.

During Fiscal Year (FY) 2023, the F24 projects will focus efforts on fielding alternative capabilities and developing enhancements to existing open burn and open detonation techniques. This effort will include the evaluation of hazardous air pollutants generated in the demil capability for the 155mm Projectile Family of Scatterable Mines (FASCAM) at McAlester Army Ammunition Plant deactivation furnace.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Advanced Destruction	4.316	4.472	4.282
Description: This effort focuses on developing capabilities and capacities for the destruction of obsolete and or unsafe munitions.			
FY 2022 Plans: Final Design of a reactive armor tile demil oven. Install and test a capability to demil plastic walled shotgun cartridges. Fabricate Hardware to demilitarize Honest John Warheads.			
FY 2023 Plans: Planned initiatives include: conduct of an operational test of the download equipment for the Honest John Warhead. The Honest John Warhead contains M40 and M38 cluster munitions bomblets/grenades, which will be disposed of in a safe manner. Transition is scheduled for FY 2024.			
FY 2022 to FY 2023 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Decrease from FY2022 to FY2023 attributed to MK-246 Shotgun Demil completion in FY2022.			
Title: Resource Recovery and Recycling (R3) ***Description:*** This effort focuses on enhancing existing methods of munitions R3, which will maximize sale of residual materials. Proceeds of R3 sales are reinvested in the Army Demilitarization mission to reduce the B5A stockpile. Proceeds of R3 sales are reinvested in the Army Demilitarization mission to reduce the B5A stockpile. ***FY 2022 Plans:*** Design and Start Fabrication for full sized Automated Scrap Inspection System. Initiate a design for Reuse of Rocket Motor Grains ***FY 2023 Plans:*** Planned initiatives include: systemization of the Automated Scrap Inspection System at Tooele Army Depot (TEAD). The Automated Scrap Inspection (ASI) will implement a automated inspection of thermally treated munitions via back scatter X-ray machine vision, and artificial intelligence to verify that the material is safe to release to the public for resale of residuals. The goal is to enhance both the safety and efficacy of the process. A preliminary design will be completed for the size reduction of rocket motor grains capability. The size reduction of rocket motor grains project will focus on developing an alternative to open burning or static fire of obsolete rocket motors. This initiative will focus on development and implementation of methods for propellant size reduction and reuse of rocket motor casings. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease from FY 2022 to FY 2023 attributed to purchase of Automated Scrap Inspection System equipment in FY 2022. Equipment systemization will occur in FY 2023.	0.810	4.186	4.002
Title: Advanced Removal ***Description:*** This effort focuses on technology to remove propellant and energetics from munitions to allow closed disposal thermal treatment. ***FY 2022 Plans:*** Initiate operational test of Shaped Charge Removal equipment to allow thermal treatment. Conduct operational Test for the capability to demil 155mm Illumination Projectiles. Conduct LRIP of 2.75" Rocket Motor Capability. ***FY 2023 Plans:*** Funding will support transition of the demil capability for the 155mm Illumination Projectiles to an organic facility. The configuration of the D505 has a unique expulsion charge, configuration and additional baseline pinning making direct pushout challenging and a safety concern. Funding will also support a complete transition of a capability to demil 2.75" Rocket Motors. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	0.957	1.738	1.664

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
The decrease from FY2022 to FY 2023 is attributed to the transition of the 2.75' Rocket Motor capability to Crane Army Ammunition Activity (CAAA) in FY 2022.			
Title: Advanced Waste Stream Treatment ***Description:*** This effort focuses on handling waste streams from munitions items to continue environmentally compliant closed disposal treatment. ***FY 2022 Plans:*** Conduct Integration testing of the APE 1236 Feed System Upgrade at TEAD. Initiate design of thermal treatment of pyrotechnic munitions. Initiate design of Thermal Treatment System Hardware changes for Per- and poly-FluoroAlkyl Substances (PFAS). Implement Feed Recipes Efficiency Evaluation (FREE) findings at Depot. ***FY 2023 Plans:*** Planned initiatives include sub-scale testing of munitions containing Per- and poly-Fluoro Akyl Substances (PFAS/PFOS). These substances are emerging contaminants with toxic properties. PFAS polymers are commonly used in plastic bonded explosives (PBX), flares, O-rings, lubricants and other components that need to withstand high heat. This project addresses potential pollutants from emittance during demil operations. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease from FY 2022 to FY 2023 is attributed to postponement of APE 1236 RKI Feed System Upgrade Installation at TEAD. Disassembly of the APE 1236 RKI Feed System will occur in FY 2023 and installation of hardware upgrades will occur in FY 2024.	3.559	1.971	1.886
Title: Advanced Munitions Disassembly ***Description:*** This effort focuses on developing innovative and efficient processes to disassemble munitions. ***FY 2022 Plans:*** Complete Fabrication of Hardware for Flechette capability. Conduct LRIP for delinking and sorting capability for small arms cartridges to be fed into the APE 1236 RKI. Initiate Hardware Design and Fabrication of Smoke Hand Grenade Demil Capability. Complete Final Analysis of CS Riot Water Jet Capability. ***FY 2023 Plans:*** Planned initiatives include: integration of hardware for the Flechette capability; and verification of removal and disposal methods for the Lead Chromate in Flechette cartridges. The goal is to ensure proper removal and disposal of in a compliant manner; and conduct of sub scale testing of CS Riot Water Jet capability with disposal of the chemical agent. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	3.041	5.715	5.252

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
The decrease from FY 2022 to FY 2023 is attributed to the phasing of CS Riot Water Jet capability systemization and operational testing occurring in FY 2023.			
Title: Small Business Innovation Research (SBIR)/ Small Business Technology Transfer (STTR) ***FY 2022 Plans:*** Adjustment for SBIR/STTR transfer ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment for SBIR/STTR transfer	-	0.685	-
Accomplishments/Planned Programs Subtotals	12.683	18.767	17.086

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A