Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											Date: March 2019	
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 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	-	65.709	72.279	44.458	-	44.458	42.064	43.488	43.488	49.532	0.000	361.018
296: *Close Combat Technology**	-	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	5.087	0.000	5.087
297: *Mun Survivability & Log*	-	15.985	31.637	15.595	-	15.595	16.362	17.062	17.040	17.247	0.000	130.928
857: *DoD Explosives Safety Standards*	-	1.889	1.840	1.858	-	1.858	1.892	1.930	2.023	1.984	0.000	13.416
858: *Army Explosives Safety Management Program*	-	1.042	0.991	1.011	-	1.011	1.030	1.047	1.079	1.076	0.000	7.276
859: *Life Cycle Pilot Process*	-	29.345	20.434	5.600	-	5.600	5.700	5.800	5.900	5.900	0.000	78.679
F21: *NATO Ammo Evaluation*	-	0.566	0.741	0.750	-	0.750	0.750	0.750	0.750	0.750	0.000	5.057
F24: *Conventional Munitions Demil*	-	16.882	16.636	19.644	-	19.644	16.330	16.899	16.696	17.488	0.000	120.575

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2020

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 296 - This Project will support research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of demolitions, grenades, shoulder launched munitions, mines and mine clearing charges and pyrotechnics, including training realism. Project will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
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*

Project 857 - DoD Explosives Safety Standards: This Project supports the Research, Development, Test, and Evaluation efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion-resistant facility design procedures, and personnel hazard/protection criteria.

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: The North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of direct fire ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. The 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, 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 U.S. weapons and ammunition with Allied Nations to maximize battlefield interchangeability/compatibility under the auspices of the international Joint Ballistics Memorandum Of Understanding (JBMOU). Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of U.S. indirect fire Weapon and Munition products to support United States industrial base production and affordable Department of Defense pricing through increased economies of scale. FY 2020 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 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 (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

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
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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.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	43.444	42.332	44.269	-	44.269
Current President's Budget	65.709	72.279	44.458	-	44.458
Total Adjustments	22.265	29.947	0.189	-	0.189
• Congressional General Reductions	-0.036	-0.053			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	29.000	-			
• Congressional Directed Transfers	-	30.000			
• Reprogrammings	-5.000	-			
• SBIR/STTR Transfer	-1.699	-			
• Adjustments to Budget Years	-	-	0.189	-	0.189

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: 297: *Mun Survivability & Log*		
Congressional Add: *Congressional Add - Navy Polymer cased small arms ammunition*	-	15.000
Congressional Add Subtotals for Project: 297	-	15.000
Project: 859: *Life Cycle Pilot Process*		
Congressional Add: *Congressional Add*	24.000	14.794
Congressional Add Subtotals for Project: 859	24.000	14.794
Congressional Add Totals for all Projects	24.000	29.794

Change Summary Explanation

Fiscal Year (FY) 2018 increase includes $29.000 million in congressional adds for: polymer cased small arms ammunition ($5.000 million); and Life Cycle Pilot Process ($5.000 million); and two Program Increases ($5.000 million, $14.000 million).

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
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FY19 increase includes $30.000 Million in Congressional Adds for: transformative technologies for propulsion manufacturing processes ($11.000 million); industrial base resiliency ($5.000 million); life cycle pilot processes ($10.000 million); and polymer cased small arms ammunition ($4.000 million).

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
297: *Mun Survivability & Log*	-	15.985	31.637	15.595	-	15.595	16.362	17.062	17.040	17.247	0.000	130.928
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 thrust areas 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 area, 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Munitions Predictive Life	1.514	1.378	1.260

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.

FY 2019 Plans:

Conduct qualification safety testing of an integrated second generation prototype next generation ammunition container based temperature/humidity exposure reliability sensor. Conduct qualification testing of a Multi Frequency Sensor Suite that will monitor munitions exposure to ambient radiation over their lifecycle for improved reliability knowledge. Conduct correlation testing on the passive time/temperature exposure sensor with legacy ammunition items and integrate. Conduct market survey of passive Radio Frequency Identification and low cost active environmental sensors for legacy munitions, select viable candidates, and test. Integrate passive propellant temperature sensor with fire control systems and processes. Incorporate automation friendly health monitors into automation supply point - scalable and continue integration testing.

FY 2020 Plans:

Demonstrate concept of operations of an integrated second generation ammunition container based temperature/humidity exposure reliability sensor. Demonstrate Multi Frequency Sensor Suite in a training environment that will monitor exposure to ambient radiation over their lifecycle with legacy ammunition items. Support qualification testing and required modifications of

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
passive time/temperature exposure sensor. Conduct additional correlation testing on legacy ammunition items to prepare for broader stockpile integration. Conduct market survey of passive Radio Frequency Identification and low cost active environmental sensors for legacy munitions, select and test viable candidates. Conduct sensitivity analysis of near-real time propellant temperature on ballistic solutions. Incorporate munition monitoring technologies into demonstrations. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 funding level is lower than FY 2019 because multiple efforts are transitioning.			
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 2019 Plans:*** Transition improvements from High Shear Mix project to qualified propellant materials to produce high-performing propellants with better fragment impact (FI) responses. Validate novel propellant technologies in medium and large caliber munitions to reduce hazards from FI threat. Demonstrate novel packaging heat management materials in mortars systems to delay catastrophic responses in Slow Cook Off (SCO) conditions. Validate packaging configurations that eliminate mass detonation events in tightly-packed medium caliber munitions. Optimize granulated melt-pour energetics to reduce mass-detonation hazards of tightly-packed medium caliber munitions while maintaining high-energy output. ***FY 2020 Plans:*** Conduct end item testing of a high energy pressed explosives to replace Comp A5 to reduce the reaction violence from shock and slow heating. Continue development of medium caliber, foamed celluloid cartridge cases to create a novel venting solution for shock and thermal events. Conduct fragment impact testing on new igniter formulations to replace Benite in 120mm tank munitions. Perform IM testing on the M433E1 to integrate technologies for warhead and packaging venting along with impact mitigation technologies. Continue optimization of plastic packaging containers for large caliber munitions to mitigate both fast and slow cook-off events. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 funding level is higher than FY 2019 due to anticipated increases in labor and testing costs.	6.046	6.321	6.745
Title: Improved Munitions Packaging	3.551	3.076	2.133

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
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. ***FY 2019 Plans:*** Conduct verification testing on injection molded cylindrical container that integrates it for use with the M829A4 120mm tank and 120mm mortar munitions. Conduct verification testing for the plastic rectangular container to integrate it for use with legacy 5.56mm small caliber ammunition. Produce prototypes geared to ?lighten the load? and perform in-house engineering tests to validate. Perform final hazard classification testing on M6 and M7 blasting cap container design with Mycofoam. Conduct verification testing of a small caliber ammunition bulk packaging container for improved distribution efficiency. Facilitate implementation of new bulk container at LCAAP and identify other potential small caliber ammunition bulk container candidates. Conduct developmental testing of the initial plastic mortar container prototype for use with all families of mortars. Perform rough handling, drop testing, and other developmental testing on the rapid access container consolidator. ***FY 2020 Plans:*** Develop prototypes and perform engineering testing for the Rapid Access Container Consolidator (RACC) program for M2A2 containers. Perform engineering and verification testing on the Bulk Pack Container program for 7.62MM linked ammunition and continue to facilitate implementation of new design with LCAAP. Continue to conduct verification testing on injection molded cylindrical container for integration with the M829A4 120mm tank ammunition. Conduct qualification testing for the plastic rectangular container to integrate it for use with legacy 5.56mm small caliber ammunition. Conduct engineering and prototype testing on injection molded plastic mortar container for integration with 120mm mortar munitions. Conduct engineering testing on the lightweight M2A2 container as part of the Lighten the Load program for use on small caliber ammunition. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 funding level is lower than FY 2019 because multiple efforts are transitioning.			
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). ***FY 2019 Plans:***	4.874	5.252	5.457

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
Demonstrate multiple enablers including Ammunition Quality Decision Tool, Configured Load Building Tool, MHE applique interface kit and CADES as parts of an integrated ammunition scenario within ASP-S. Develop the design concept and down select sensor and scanning hardware for an automated truck scanning capability to enable conveyance level transfer of accountability and autonomous inspections of transported cargo in the ASP-S. Develop the design concept and down select platform, sensor and scanning hardware for a yard mule transport capability to enable local autonomous lift capability during the consolidation and put-away processes within the ASP-S. Perform engineering evaluation of an integrated round counting sensor device that enables automatic capturing of fired ammunition data from weapon systems to facilitate anticipatory resupply. Support continued use of DRAM and the Class V Adaptive Demand Estimation System (CADES) prototypes in operational demonstrations. Perform validation and verification testing for an integrated round counting sensor device that enables automatic capturing of fired ammunition data from weapon systems to facilitate anticipatory resupply. Develop artificial intelligence concepts and apply to ammunition handling activities such as turn in and retrograde operations. Conduct operational assessment of expeditionary MSS enhancements. ***FY 2020 Plans:*** Demonstrate multiple improved ammunition logistics enablers including Ammunition Quality Decision Tool, Configured Load Building Tool, MHE interface kit and Class V Adaptive Demand Estimation System (CADES), integrated through Cognitive Automated Supply Point Enhanced Robotics (CASPER), within Automated Supply Point-Scalable (ASP-S). Perform testing and initial user assessment for continued development of integrated round counting sensor device. Facilitates anticipatory resupply by enabling automatic reporting of quantity and type of fired ammunition through signature analysis from small and medium caliber weapon systems. Support continued development and field trials of Distribution and Retrograde Adaptive planning and execution Management (DRAM) and CADES prototypes through operational demonstrations. Develop artificial intelligence and mechanical systems to facilitate the turn in, inspection, and retrograde of small to medium caliber ammunition in forward tactical environments. Continue development and conduct incremental operational assessment of expeditionary Munitions Survivability Software (eMSS) enhancements. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Minor program adjustment			
Title: FY 2019 SBIR/STTR Transfer ***Description:*** FY 2019 SBIR/STTR Transfer ***FY 2019 Plans:*** FY 2019 SBIR/STTR Transfer ***FY 2019 to FY 2020 Increase/Decrease Statement:***	-	0.610	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 SBIR/STTR Transfer			
Accomplishments/Planned Programs Subtotals	15.985	16.637	15.595

	FY 2018	FY 2019
Congressional Add: Congressional Add - Navy Polymer cased small arms ammunition	-	15.000
FY 2019 Plans: Congressional Add - Navy Polymer cased small arms ammunition		
Congressional Adds Subtotals	-	15.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 857 / *DoD Explosives Safety Standards*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
857: *DoD Explosives Safety Standards*	-	1.889	1.840	1.858	-	1.858	1.892	1.930	2.023	1.984	0.000	13.416
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports continuing technology investigations related to Explosives Safety Standards. It provides 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.

This Project supports the Research, Development, Test, & Evaluation (RDTE) efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion resistant facility design procedures, and personnel hazard/protection criteria.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Explosive and Munitions Tests	1.137	1.056	1.117
Description: Testing aimed at solving practical problems and increasing predictability of the effects of explosions and impacts on people, materials and structures. Additionally, testing provides data on the interaction of explosives in various configurations. Testing results are used to improve predictability of effects from explosive incidents and improve criteria to protect people, structures and the environment from the damaging effects of DoD munitions. ***FY 2019 Plans:*** Continue testing of laboratory quantities, potential partnering effort for testing of underwater shock effects, further maturation of HD 1.3 testing and scaled testing of earth-covered magazines to determine blast pressures at intermagazine distance. ***FY 2020 Plans:*** Conduct scaled and full-scale testing of earth-covered magazines, and continue test program to characterize thermal/combustion hazards in explosives storage and operating facilities and develop models to predict these hazards. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 increase for full-scale testing of earth-covered magazines.			
Title: Explosive Safety Standards (ESS) Implementation Methodologies & Tools	0.400	0.375	0.389

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Description: Provide tools to support site planning and risk assessment in the garrison and contingency environments. Provide tools and improvements for UFC 3-340-02 and Substantial dividing wall criteria. Provide methodologies and tools to perform site-specific analyses, databases for critical explosives safety information, and standardized designs to reduce design costs. Develop models to predict response for large scale explosion effects. ***FY 2019 Plans:*** Will continue effort on harmonization with NATO and UN policy resulting in seamless NATO and multi-national operations. Initial phase of work to develop more refined secondary debris hazards from explosives storage buildings. ***FY 2020 Plans:*** Finalize transition of ESS to web hosting, with full capability for quantity-distance and risk-based siting of explosives facilities DoD-wide. Develop expanded suite of tools to meet diverse needs of the DoD explosives safety community. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Finalizing transition of ESS to web hosting.			
Title: Standard Development & Improvement ***Description:*** Improve and revise all DoD Explosives Safety Standards (for hazard classification, quantity distance, and protective construction) to keep them current with changing technology and incorporate knowledge gained from the testing program. Shape and leverage with international community (NATO & UN). Develop Advanced (e.g. risk-based) siting criteria. ***FY 2019 Plans:*** Develop tools & models required to calculate, estimate and predict explosives safety hazards, associated standoff distances, fragmentation distribution, personnel risks and other parameters. Additionally tools are required to develop and maintain explosives safety site plans. ***FY 2020 Plans:*** Pursue update of NATO criteria to better address debris and thermal hazards from explosives, as indicated by results of multi-year US test and modeling programs. Incorporate test results of earth-covered magazine blast load testing into DoDM 6055.09 and UFC 3-340-02. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** To pursue update of NATO criteria.	0.352	0.350	0.352
Title: FY19 SBIR/STTR adjustment ***FY 2019 Plans:***	-	0.059	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY19 SBIR/STTR adjustment			
FY 2019 to FY 2020 Increase/Decrease Statement: FY19 SBIR/STTR adjustment			
Accomplishments/Planned Programs Subtotals	1.889	1.840	1.858

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
858: *Army Explosives Safety Management Program*	-	1.042	0.991	1.011	-	1.011	1.030	1.047	1.079	1.076	0.000	7.276
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. FY20 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 A&E environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
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 2019 Plans:*** Continuing explosives testing and support of hazard research and exposure consequences. ***FY 2020 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization based upon holistic program assessment.	0.150	0.100	0.150
Title: Development of enhanced protective structure designs ***Description:*** Develop enhanced protective structure designs that improve the survivability of Army personnel, facilities and equipment. ***FY 2019 Plans:*** Continuing explosives testing and support for improving protective construction designs. ***FY 2020 Plans:***	0.425	0.725	0.611

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Will continue explosives testing and support for improving protective construction designs. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding decrease due to within-Project re-prioritization and adjustment for inflation.			
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 2019 Plans:*** Continuing development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2020 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization based upon holistic program assessment.	0.467	0.134	0.250
Title: FY19 SBIR/STTR adjustment ***FY 2019 Plans:*** FY19 SBIR/STTR adjustment ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY19 SBIR/STTR adjustment	-	0.032	-
Accomplishments/Planned Programs Subtotals	1.042	0.991	1.011

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
859: *Life Cycle Pilot Process*	-	29.345	20.434	5.600	-	5.600	5.700	5.800	5.900	5.900	0.000	78.679
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, assessments, modeling and simulation, pilot / scale-up prototype processes, and industrial assessments. Projects support overall Army's sustainment and modernization efforts for armaments and ammunition industrial base. Specifically, this project 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. Life Cycle Pilot Process (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. FY 2020 funding will be used to continue testing and evaluation for new materials, investigations and manufacturing technologies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Product Cost Thrust Area	1.686	1.261	2.159
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 and materials to lean manufacturing processes to reduce overall unit cost.			
FY 2019 Plans: Continue and transition insensitive munitions explosives (IMX) riser reclamation prototype process to NTIB. Riser scrap is generated during the loading of melt pour ammunition. This effort investigates and develops prototype equipment to reclaim and reuse the energetic waste. Complete IMX waste solids for reprocessing. Repurpose IMX constituents (DNAN and NA - Dinitroanisole (DNAN) and nitro guanidine) in solids waste stream from M795 artillery LAP.			
FY 2020 Plans: Continue to evaluate new materials, processes and technology to reduce overall production and end item costs for the Army. Complete and transfer IMX riser reclamation project to Iowa Army Ammunition Plant. Complete ultrasonic inspection of slurry coated explosives effort. Effort seeks to monitor critical parameters of explosive manufacturing and increase production yield and reduce rework costs.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
Increase in product cost thrust area due to ultrasonic inspection effort.			
Title: Single Point Failures (SPFs) ***Description:*** This thrust area seeks to mitigate single source and/or no source of supply to armaments and ammunition. 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 2020 efforts will continue evaluation of manufacturing shortfalls and testing to reduce the number of SPFs. ***FY 2019 Plans:*** Execute BDNA/F (acetaldehyde bis(dinitropropyl)acetal - BDNPA) and formaldehyde bis(dinitropropyl)acetal - BDNPF) SPF Mitigation. BDNA/F is an energetic plasticizer used in PAX-3 explosive. BDNA/F has no supply for production. Due to an increase in PAX-3 ammunition requirements, there is a requirement mitigate the SPF. Execute alternative anti-seize material for artillery fuze plugs. Currently there is one source of anti-seize material. This effort will identify and characterize alternative anti-seize lubricant. 2019 plans also include continuing mitigation of liquid battery reserve SPF for artillery fuzes. The cathode material on fuze batteries has only one source of supply. Effort will test and evaluate alternative cathode materials. Thrust area plans will also complete SPF densified basic magnesium carbonate (DBMC). DBMC is single source constituent in smoke grenade formulations. Effort will test and evaluate system performances of alternative supply sources. ***FY 2020 Plans:*** Continue to mitigate single source and/or no source of supply for armaments and ammunition. Transition mitigation plan to PM for their use in risk mitigation implementation supply strategies and assessing procurement strategies for affected end items. Continue BDNA/F SPF mitigation. Complete liquid reserve SPF and alternative anti-seize materials for artillery efforts. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease in SPF thrust area due to completion of BDNA/F SPF mitigation.	1.303	1.925	1.384
Title: Manufacturing Technology for Industrial Base Transformation ***Description:*** Project thrust area matures ammunition manufacturing technologies and processes to enhance capabilities to legacy armaments and ammunition manufacturing operations. Thrust area will pilot manufacturing technologies and transition technologies to affected industrial base for armaments and ammunition manufacturing operations. The FY 2020 program will continue to evaluate manufacturing and processes to enhance capabilities for legacy manufacturing operations. ***FY 2019 Plans:*** Complete test and evaluation of lead free primer automated manufacturing process. This effort will reduce operator exposure to hazardous materials and operations and improve product consistency and quality. The FY 2019 plans include process prove-	2.356	2.255	2.057

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
out. Efforts also continue nitrocellulose fines treatment. Manufacturing of nitrocellulose (NC) propellants results in the production of waste containing NC fines. The current disposal method is open burning. This effort evaluates and demonstrates a closed system disposal capability for NC fines. FY 2019 efforts also complete ammonium nitrate solution (ANSOL) / flyash study. To mitigate the cost of ANSOL disposal, effort will identify method to reuse ANSOL. ***FY 2020 Plans:*** Continue manufacturing technology assessments / investigations and develop technology transfer strategies for implementation to Army?s industrial base. Complete ultrasonic inspection of slurry coated explosives effort. Effort seeks to monitor critical parameters of explosive manufacturing and increase production yield and reduce rework costs. Complete pre-cursor celluloid for foamed celluloid applications with OCONUS celluloid source. Effort will develop improved method to support foam celluloid applications. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Slight decrease in manufacturing technology for industrial base transformation thrust area due to single point failure thrust area mission priorities.			
Title: FY19 SBIR/STTR adjustment ***FY 2019 Plans:*** FY19 SBIR/STTR adjustment ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY19 SBIR/STTR adjustment	-	0.199	-
Accomplishments/Planned Programs Subtotals	5.345	5.640	5.600

	FY 2018	FY 2019
Congressional Add: Congressional Add ***FY 2018 Accomplishments:*** Congressional Add ***FY 2019 Plans:*** Congressional Add	24.000	14.794
Congressional Adds Subtotals	24.000	14.794

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
F21: *NATO Ammo Evaluation*	-	0.566	0.741	0.750	-	0.750	0.750	0.750	0.750	0.750	0.000	5.057
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, 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 (U.S.) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/compatibility under the international Joint Ballistics Memorandum Of Understanding (JBMOU). Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of U.S. indirect fire Weapon and Munition products to support United States industrial base production and affordable Department of Defense pricing through increased economies of scale. FY 2020 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 2018	FY 2019	FY 2020
Title: New Ammo Design Qualification & NATO Mission Support	0.143	0.291	0.300
Description: This activity ensures complete interchangeability of small caliber, automated cannon-caliber, 40mm grenade ammunition, air burst capable 30mm/40mm ammunition, and weapons among NATO countries to achieve the associated logistic, strategic and tactical advantages. ***FY 2019 Plans:*** Continuing work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2020 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Small change in Project requirements and estimated inflation.			
Title: Joint Ballistics Program Support	0.423	0.450	0.450

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Description: The activity supports the maturation, validation, and risk reduction of battlefield interchangeability/compatibility and associated enabling technologies between domestic U.S. and NATO/Allied Nations Indirect Fires Weapons and Munitions. ***FY 2019 Plans:*** FY 2019 continues ballistic testing including firing tables, safety, reliability, and performance. ***FY 2020 Plans:*** FY 2020 will continue interoperability testing and interchangeability group meetings.			
Accomplishments/Planned Programs Subtotals	0.566	0.741	0.750

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
F24: *Conventional Munitions Demil*	-	16.882	16.636	19.644	-	19.644	16.330	16.899	16.696	17.488	0.000	120.575
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) 2020 Project F24 will focus efforts on fielding alternative capabilities to open burn and open detonation. In FY20 Project F24 will also conduct conventional ammunition demilitarization operational testing on a Castalia system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Advanced Destruction	6.369	4.001	4.233
Description: This effort focuses on developing capabilities and capacities for the destruction of munitions.			
FY 2019 Plans: Verifying functionality of LEMC ARMD under FOC conditions. Completing MCDF FOC Transition. Conducting an operational demonstration of the Rockeye Download Equipment at CAAA. Completing Operational Demonstration of Rockeye download equipment. Completing testing on ARMD Multi Motor and Build fixturing to install at ARMD. Conducting safety and assessment effort on the obsolete Nike Herc Missile. Conducting Analysis of Alternatives and Talos Demil process.			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Will conduct operational testing of a static detonation chamber. Will conduct conventional ammunition operational testing on a Castalia System. Will conduct an operational test at MCAAP for Engine Starter Cartridges. Will conduct a static fire test of Nike Herc Missiles. Will conduct a safety and condition assessment on additional obsolete rocket motors ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase from FY19 to FY20 resulting from MCDF Transition Occurring in FY20.			
Title: Resource Recovery and Recycling (R3) ***Description:*** This effort focuses on enhancing existing methods of munitions R3. ***FY 2019 Plans:*** Will conduct testing to determine cleanliness of ammunition scrap on the Automated Scrap Inspection System at an organic depot location. Will initiate a project for Improved Donor Recovery and conduct an operation test at MCAAAP. Will initiate a project on WDU25/B Tomahawk Warheads to recover explosive for use a donor material. ***FY 2020 Plans:*** Will initiate fabrication of components for Automated Scrap Inspection System. Will conduct an operational test on RP Mortar Demil Capability at CAAA. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase from FY19 to FY20 for operation testing of RP Mortar Demil Capability and Phase II Donor Recovery Operational Testing.	1.430	2.212	2.679
Title: Advanced Removal ***Description:*** This effort develops technology to remove propellant and energetics from munitions. ***FY 2019 Plans:*** Conducting operational testing on IR Munitions Demil line at CAAA. Conducting Operational Testing of the 2.75-inch Rocket Demil Line at CAAA. Initiating design modifications and building fixturing to the RP demil line at CAAA to add RP Mortar Demil capability. ***FY 2020 Plans:*** Will transition an initial operational capability (IOC) for IR munitions at CAAA. Will transition an IOC for 2.75? Rockets at CAAA. Will initiate an Analysis of Alternative (AOA) for Insensitive Munitions (IM) Large Bombs. Will conduct an AOA for IM Autoclave Upgrades. ***FY 2019 to FY 2020 Increase/Decrease Statement:***	2.575	2.505	3.036

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Increase from FY19 to FY20 for the AoAs of IM Large Bombs and IM Autoclave Upgrades.			
Title: Advanced Waste Stream Treatment ***Description:*** This effort focuses on handling waste streams from munitions items. ***FY 2019 Plans:*** Initiating the building of the upgraded feed system on a rotary kiln incinerator at an organic location. Conducting an Analysis of Alternatives for a Bulk Energetics Confined Burn Capability located at Hawthorne Army Depot (HWAD). Initiating Feed Recipe Efficiency Evaluation project. Will initiate an evaluation of Recovered Energetic Materials for use as donor material. ***FY 2020 Plans:*** Will initiate installation of upgraded feed system at an organic installation. Will initiate a project to upgrade a RKI for CS gas treatment. Will initiate a design for a Bulk Energetic Confined Burn System at an organic location. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase from FY19 to FY20 to support development of a new Bulk Energetic Confined Burn System Capability and Testing of Feed Recipe Efficiency Evaluation.	1.809	3.241	3.682
Title: Advanced Munitions Disassembly ***Description:*** This effort focuses on developing innovative and efficient processes to disassemble munitions. ***FY 2019 Plans:*** Initiating systemization of Family of Scatterable Mines (FASCAM) demil project to integrate the preprocessing Cryofracture capability of FASCAM mines with thermal processing in the rotary kiln at Crane Army Ammunition Activity (CAAA). Conducting operational demonstration of MK46 Torpedo Warhead segmenting capability at HWAD. Completing testing of capability developed to size reduce Reactive Armor Tiles. Completing testing on Thermal Treatment of Reactive Armor Tiles. ***FY 2020 Plans:*** Will continue systemization of a Family of Scatterable Mines (FASCAM) demil project to integrate the preprocessing Cryofracture capability of FASCAM mines with thermal processing in the rotary kiln at Crane Army Ammunition Activity (CAAA). Conduct an operational demonstration on 155mm APICM projectile download capability at HWAD. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase from FY19 to FY20 to conduct an operational demonstration on the 155mm APICM projectile download Capability.	4.699	4.067	6.014
Title: FY19 SBIR/STTR adjustment ***FY 2019 Plans:***	-	0.610	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY19 SBIR/STTR adjustment			
FY 2019 to FY 2020 Increase/Decrease Statement: FY19 SBIR/STTR adjustment			
Accomplishments/Planned Programs Subtotals	16.882	16.636	19.644

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A