Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army											Date: February 2020	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	135.968	109.608	-	109.608	112.771	113.357	114.417	147.151	0.000	733.272
AY5: *Soldier Squad Small Arms Armaments Advanced Tech*	-	0.000	8.000	10.110	-	10.110	11.589	6.368	9.123	12.121	0.000	57.311
AY7: *Small Arms Fire Control Advanced Technology*	-	0.000	12.880	13.954	-	13.954	13.520	3.497	2.997	0.000	0.000	46.848
AY9: *Body Armor & Integrated Headborne Advanced Tech*	-	0.000	14.809	10.002	-	10.002	7.812	7.928	7.994	38.393	0.000	86.938
AZ6: *Soldier Signature Management Advanced Technology*	-	0.000	1.711	1.743	-	1.743	1.778	1.814	1.834	1.852	0.000	10.732
AZ8: *Soldier Squad Small Arms Armaments Adv Tech*	-	0.000	2.175	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.175
BB3: *Dismounted Soldier Survivability Equip/Tech Integ*	-	0.000	1.466	1.319	-	1.319	4.064	4.379	4.428	4.428	0.000	20.084
BB6: *Physical Augmentation: Adv Tech for Field Demo*	-	0.000	4.000	2.997	-	2.997	0.000	0.000	0.000	0.000	0.000	6.997
BB8: *Soldier Centric Advanced Technology*	-	0.000	7.797	6.091	-	6.091	5.358	2.609	2.627	8.573	0.000	33.055
BC1: *Human Performance AdvTech for Mobility & Lethality*	-	0.000	4.832	11.805	-	11.805	12.079	8.405	5.946	2.085	0.000	45.152
BC4: *Soldier Decision Making&Comms Performance AdvTech*	-	0.000	2.000	1.998	-	1.998	2.038	2.079	2.103	2.124	0.000	12.342
BC8: *Training Advanced Technology (Other than STE)*	-	0.000	1.335	4.470	-	4.470	4.501	2.635	2.621	2.571	0.000	18.133
BC9: *Adv Soldier Sensors/ Displays AdvTech for Dismounts*	-	0.000	13.659	10.999	-	10.999	16.838	33.619	33.961	33.964	0.000	143.040
BD7: *Soldier Sys Interfaces/ Integration-Sensor AdvTech*	-	0.000	9.671	9.060	-	9.060	8.478	8.645	8.983	9.074	0.000	53.911

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army												Date: February 2020
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*							
BD9: *Soldier & Sm Unit Tactical Energy AdvTech*	-	0.000	3.101	3.160	-	3.160	3.223	4.296	4.358	4.402	0.000	22.540
BE2: *Joint Service Combat Feeding Advanced Technology*	-	0.000	1.782	2.417	-	2.417	2.454	2.046	2.069	2.069	0.000	12.837
BE5: *Personnel & Airdrop Safety Advanced Technology*	-	0.000	6.770	6.293	-	6.293	6.964	6.954	7.046	7.117	0.000	41.144
BE9: *STE Advanced Technology*	-	0.000	22.480	13.190	-	13.190	12.075	18.083	18.327	18.378	0.000	102.533
BS8: *Soldier Lethality Advanced Technology*	-	0.000	17.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.500

Note

In Fiscal Year (FY) 2020 this Program Element (PE) was previously funded, with continuity of effort realigned from the following PEs:
* 0603001A Warfighter Advanced Technology
* 0603004A Weapons and Munitions Advanced Technology
* 0603015A Next Generation Training & Simulation Systems
* 0603606A Landmine Warfare and Barrier Advanced Technology
* 0603607A Joint Service Small Arms Program
* 0603710A Night Vision Advanced Technology

A. Mission Description and Budget Item Justification

This PE matures and demonstrates Soldier Lethality technologies that improve Soldier operational performance by increasing lethality, mobility, protection, and optimizing situational awareness across the spectrum of operating environments and missions. This PE matures Soldier weapons and enabling components / subsystems, demonstrates lethal weapons systems with potential to provide greater lethality, target acquisition, fire control, and range at a significantly reduced weight for optimized Soldier and Small Unit system performance. The major focus areas for Soldier Lethality Science and Technology are Soldier weapons and ammunition technologies, protection technologies, cognitive and physical performance measures, training in synthetic training environments, and mission support capabilities such as situational awareness sensors and displays, dismounted power and energy technologies, and Soldier and Small Unit sustainment capabilities. This technology diverse PE also matures and demonstrates sensor technologies that increase Warfighter situational understanding, survivability, and lethality by providing sensor capabilities to acquire and engage all targets and threats at longer ranges in complex environments and operational conditions (e.g. day/night, obscured, smoke, adverse weather, and other degraded visual environments), and for advancing live training technologies that accurately replicate and realistically represent the effects of current and future weapons systems during force-on-force and force-on-target training. This PE matures and demonstrates effective technology in personal combat clothing, protective equipment such as personal armor, helmets, and eyewear, combat rations, shelters, logistical support items for aerial delivery of personnel and cargo, and energy systems to power current and emerging Soldier-born ISR, sensor, optical, and communication systems with the least weight and sustainment burden on the Soldiers and Small Combat Units. This PE matures and demonstrates technologies supporting the Army's Synthetic Training Environment (STE), a single, interconnected synthetic training system that will enable Army units and leaders to conduct realistic multi-echelon / multi-domain combined arms maneuver and mission

command training, increasing proficiency through repetition. A specific research thrust area is applying systems-based practices to mature and demonstrate scientific and tailored knowledge of Soldiers' physical and cognitive architecture to facilitate rapid and efficient designs, assessments and trade-off analyses of technology insertions on the Soldier. Significant S&T investments are directed to improve the effectiveness of the technologies a Soldier utilizes while reducing the size and weight of the form factor of the equipment.

Work in this PE complements PE 0602143A (Soldier Lethality Technology).

All FY21 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

Work in this Project is performed by the United States Army Futures Command.

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	118.468	109.968	-	109.968
Current President's Budget	0.000	135.968	109.608	-	109.608
Total Adjustments	0.000	17.500	-0.360	-	-0.360
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	17.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.360	-	-0.360

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: BS8: *Soldier Lethality Advanced Technology*		
Congressional Add: *Subterranean Warfighter Advanced Technology*	-	1.500
Congressional Add: *Rapid Safe Advanced Materials*	-	6.000
Congressional Add: *Multi-Spectral Sensor Mitigation*	-	5.000
Congressional Add: *Helmet Pad Suspension Systems*	-	5.000
Congressional Add Subtotals for Project: BS8	-	17.500
Congressional Add Totals for all Projects	-	17.500

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army	Date: February 2020
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603118A *I Soldier Lethality Advanced Technology*

Change Summary Explanation

FY20 increase related to FY20 Congressional Adds.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) AY5 / *Soldier Squad Small Arms Armaments Advanced Tech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
AY5: *Soldier Squad Small Arms Armaments Advanced Tech*	-	0.000	8.000	10.110	-	10.110	11.589	6.368	9.123	12.121	0.000	57.311

Note

In Fiscal Year (FY) 2020 this Project is being realigned from:
Program Element (PE) 0603607A Joint Service Small Arms Program:
* Project 627 Joint Service Small Arms Program (JSSAP)

A. Mission Description and Budget Item Justification

This Project demonstrates individual and crew-served weapon designs and technologies that enhance the fighting capabilities and survivability of the dismounted Warfighter in support of the Army's Soldier Lethality Modernization priority and all of the Services. All work is led by the JSSAP and is based upon the Joint Service Small Arms Master Plan (JSSAMP) and the Joint Capabilities Integration Development System's Small Arms Analyses.

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

This effort complements work done in PE 0602143A (Soldier Lethality Technology) / AY6 (Soldier Squad Small Arms Armaments Technology).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Small Arms Technology Demonstration	-	7.637	2.895
Description: This effort matures and demonstrates the next generation Family of Ammunition by optimizing small arms ammunition and weapon system technologies for integration into live fire demonstrations. It refines weapon system integration and supports the Joint Warfighter's small arms capability needs as well as validates small arms weapon system technology readiness levels and confidence of design functionality in advanced operating scenarios.			
FY 2020 Plans: Mature the technologies for the Next Generation Family of Ammunition (NGFoA) Advanced Armor Piercing (ADVAP) round to technology readiness level (TRL) 6, System/subsystem model or prototype demonstration in a relevant environment, to ensure optimal performance against hard and soft targets; mature and demonstrate Joint Remote Weapon Station technologies and optimize Advanced Weapon Operating Technologies for Technology Insertions into emerging systems.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AY5 / *Soldier Squad Small Arms Armaments Advanced Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Will demonstrate emerging small arms technologies in current and next generation weapon systems to address sustained suppressive and precise lethal fires for area target capability gaps for improved effectiveness at extended ranges; optimize and integrate technology components for the weapon system to achieve enhanced controllability, reduced recoil, and increased accuracy; mature weapon sensors for enhanced aiming. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned to the Next Generation Family of Ammo effort within this Project.			
Title: Next Generation Family of Ammo ***Description:*** This effort matures and demonstrates the next generation of small arms live training ammunition by optimizing it through integration into new weapon systems that will provide an increased level of lethality. ***FY 2021 Plans:*** Will mature and demonstrate integrated technologies for the combat tracer and reduced range tracer concept projectiles of the NGFoA to validate tracer concept designs for aligning the tracer ammunition effort with conventional ammunition and the Next Generation Soldier Weapon (NGSW). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding in this effort was realigned from Small Arms Technology Demonstration within this Project and PE 0602143A (Soldier Lethality Technology) / AY6 (Soldier Squad Small Arms Armaments Technology).	-	-	7.215
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.363	-
Accomplishments/Planned Programs Subtotals	-	8.000	10.110

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AY5 / *Soldier Squad Small Arms Armaments Advanced Tech*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) AY7 / *Small Arms Fire Control Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
AY7: *Small Arms Fire Control Advanced Technology*	-	0.000	12.880	13.954	-	13.954	13.520	3.497	2.997	0.000	0.000	46.848

Note

In Fiscal Year (FY) 2020 this Project is being realigned from:
Program Element (PE) 0603710A Night Vision Advanced Technology:
*Project K70 Night Vision Advanced Technology
PE 0603004A Weapons and Munitions Advanced Technology:
*Project 232 Advanced Lethality & Survivability Demonstration

A. Mission Description and Budget Item Justification

This Project matures and demonstrates fire control and targeting sensor technologies and techniques to improve targeting and lethality in order to maintain overmatch at longer ranges in all operational environments and to meet the capability needs of Army Science and Technology Soldier Lethality, Next Generation Combat Vehicle, and Long Range Precision Fires modernization priorities.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy. All FY20 adjustments align program financial structure to Army Modernization Priorities in support of the National Defense Strategy.

This effort complements work done in PE 0602143A (Soldier Lethality Technology) / AY8 (Small Arms Fire Control Technology).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Soldier Squad Small Arms Armaments Advanced Technology	-	12.296	13.954
Description: This effort will mature and demonstrate fire control and targeting sensor technologies and techniques to improve targeting and lethality, and maintain overmatch at longer ranges in all environments. This effort is coordinated with PE 0602143A (Soldier Lethality Technology), PE 0602145A (Next Generation Combat Vehicle Technology), 0603462A (Next Generation Combat Vehicle Advanced Technology), and PE 0603463A (Network C3I Advanced Technology).			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AY7 / *Small Arms Fire Control Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Mature and configure modular, multispectral, digital weapon sensor technologies and modalities; optimize identification range and integrate with lighter weight payload; optimize design of multifunction sensor system for fire support and dismounted Scout Operations; optimize illuminator and designator laser source; and mature image processing approaches. ***FY 2021 Plans:*** Will mature and optimize sensor designs to create a next generation, digital weapon sight fire control system; demonstrate a modular, multispectral, digital weapon sensor demonstrator to enhance Soldier targeting and lethality; mature individual weapon sight fire control system prototype based on user feedback to provide a far target location capability; validate illuminator and designator laser sources, and multifunction sensor system for fire support and dismounted Scout operations; optimize image processing approaches for initial demonstration. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase in funding from PE 0603318A (Soldier Lethality Advanced Technology) / AY5 (Soldier Squad Small Arms Armaments Advanced Tech) to support development of demonstrator for Soldier assessment.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.584	-
Accomplishments/Planned Programs Subtotals	-	12.880	13.954

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) AY9 / *Body Armor & Integrated Headborne Advanced Tech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
AY9: *Body Armor & Integrated Headborne Advanced Tech*	-	0.000	14.809	10.002	-	10.002	7.812	7.928	7.994	38.393	0.000	86.938

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project FF6 Individual Protection

A. Mission Description and Budget Item Justification

This Project matures and demonstrates body armor weight reductions and improves the performance of personal protection and survivability equipment. It also demonstrates combat helmet ballistic, blast, and small arms protection performance enhancements and the integration and optimization of power, energy, and digital sensor and display headborne technologies.

This effort supports Force Protection capability demonstrations for Soldiers and Small Units and demonstrated technologies from this effort transition to various Program Executive Office (PEO) Soldier programs. This effort complements work done in PE 0602143A (Soldier Lethality Technology) / AZ2 (Body Armor & Integrated Headborne Technology).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Body Armor & Integrated Headborne Advanced Technology	-	14.137	10.002
Description: This effort focuses on maturing, integrating and demonstrating personal protective capabilities against ballistic, blast, and directed energy threats as well as the development and demonstration of Soldier worn platform architectures to optimize the integration of personal protective equipment and Soldier lethality enabling technologies. Demonstrates advanced test methods to validate personal protective equipment performance enhancements against current and emerging small arms, fragmentation, and blast threats from anti-personnel munitions. The objective of these technology development efforts is to significantly increase Soldier lethality by enhancing the protective capabilities and reducing sub-system and system-level weight of individual protective equipment to reduce the Soldier burden and increase survivability.			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AY9 / *Body Armor & Integrated Headborne Advanced Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Mature combat helmet forming processes to enhance protective performance by integrating state of the art, high performance polyethylene materials; exploit hybridized material configurations and architectures to demonstrate a combat helmet with lower weight small arms protective capability; demonstrate a real time ballistic helmet test methodology to improve behind-helmet blunt trauma measurement capabilities and provide performance data for correlation to emerging head/brain injury criteria to inform future combat helmets requirements; integrate hearing and eyewear protection findings onto optimized platforms to enhance individual Soldier hearing protection and maximize operational situational awareness; optimize and mature head-borne shock tube test methodology as a means to improve blast-over pressure profiles that can be correlated to operational blast environment conditions; exploit existing and developmental ballistic resistant materials in new system architectures to provide vital torso region protection against emerging, near peer, small arms threats to provide near term performance trade space analysis. ***FY 2021 Plans:*** Will mature body armor systems for protection against emerging small arms threats; optimize system level testing of body armor against small arms threats with the objective of capturing high rate force profiles to better understand injury mechanics of blunt trauma to inform future requirements that link to injury criteria; improve the helmet system design by applying human systems integration practices to the incorporation of multiple protective and situational awareness technologies required for the Integrated Headborne System to improve helmet ergonomics, stability, and headborne load distribution. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Lower funding change reflects planned lifecycle of this effort.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.672	-
Accomplishments/Planned Programs Subtotals	-	14.809	10.002

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AY9 / *Body Armor & Integrated Headborne Advanced Tech*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) AZ6 / *Soldier Signature Management Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
AZ6: *Soldier Signature Management Advanced Technology*	-	0.000	1.711	1.743	-	1.743	1.778	1.814	1.834	1.852	0.000	10.732

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project FF6 Individual Protection

A. Mission Description and Budget Item Justification

This Project optimizes, matures and demonstrates advances in novel materials, technologies, techniques and applications increasing the capabilities of camouflage and concealment against known and emerging sensor threats, providing effective deception capabilities, as well as combinations of physical and electronic signature decoy components and maturing analytical processes for modeling performance of signature management technologies during multi-domain operations. These technologies will produce proof of concept systems that decrease the probability of detection and targeting by peer and near-peer adversaries, enabling freedom of movement of semi-independent and dispersed formations and increased protection of high-valued assets. Demonstrations conducted under this Project will support Science and Technology efforts in Soldier Lethality protection/survivability Projects to provide disruptive Camouflage, Concealment and Deception technologies to the Operational Army, supporting expeditionary maneuver in the Multi-Domain Battle Environment to open and retain windows of advantage.

Work in this Project supports key Army needs and leverages/complements the technical research of several PEs to include PE 0602143 (Soldier Lethality Technology) / BB4 (Dismounted Soldier Survivability Materials), AZ5 (Soldier Protection Technology - Vulnerability), BE1 (Support Technology to Mission Command), AZ9 (Soldier - Small Unit Detectability Technology); PE 0601102A (Defense Science Research); and PE 0602145A (Next Generation Combat Vehicle Technology) BI2 (Sensor Protection Technology).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Soldier Camouflage, Concealment and Decoys Demonstration	-	1.634	1.743
Description: This effort demonstrates innovative camouflage, concealment, and deception technologies for the dismounted Soldier to defeat advanced current and emerging adversary Intelligence, Surveillance and Reconnaissance (ISR) threats and to reduce the probability of detection, identification across the electromagnetic spectrum. Matures physics-based models for material and system performance that support probability of detection metrics in the multi-domain operational environment, assisting in			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AZ6 / *Soldier Signature Management Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
closing the capability gap between current camouflage, concealment, and deception technologies and defeating enemy sensorial capabilities in future operating environments. ***FY 2020 Plans:*** Improve coatings and overgarment clothing for Soldier clothing and individual equipment that reduces the probability of Soldier detection from thermal sensors; mature topical applications to conceal exposed skin (i.e. face, hands) from thermal sensors; demonstrate performance of advanced textile printing that imparts multiple functionalities to include durable camouflage patterns to clothing and individual equipment from visual and thermal sensors. ***FY 2021 Plans:*** Will demonstrate textile coatings and garment designs for Soldier clothing and individual equipment to reduce the probability of Soldier detection from battlefield thermal sensors while integrating other key garment performance requirements; optimize the balance between detection, protection, comfort and durability of clothing systems; mature and demonstrate topical applications to conceal exposed skin (i.e. face, hands) from thermal sensors; validate the visual, infrared, and radar signatures of Soldiers wearing current clothing and individual equipment. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.077	-
Accomplishments/Planned Programs Subtotals	-	1.711	1.743

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) AZ8 / *Soldier Squad Small Arms Armaments Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
AZ8: *Soldier Squad Small Arms Armaments Adv Tech*	-	0.000	2.175	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.175

Note

In Fiscal Year 2020 (FY20) this Project was being realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project FF6 Individual Protection

In FY21 this Project is realigned to:
PE Network C3I Advanced Technology
* Project AQ1 Spectrum Obfuscation Advanced Technology

A. Mission Description and Budget Item Justification

This Project optimizes, matures and demonstrates novel materials, technologies, techniques and applications that increase camouflage and concealment capabilities for high-value assets against known and emerging sensor threats, provide effective deception capabilities, mature analytical processes for modeling performance of signature management technologies during multi-domain operations as well as developing combinations of physical and electronic signature decoy components. These technologies will produce proof of concept system demonstrators that decrease the probability of detection and targeting by peer and near-peer adversaries, enabling freedom of movement of semi-independent and dispersed formations and increased protection of high-valued assets. Demonstrations conducted under this project will support S&T efforts in Soldier Lethality protection/survivability projects to provide disruptive Camouflage, Concealment and Deception technologies to the Operational Army, supporting expeditionary maneuver in the Multi-Domain Battle Environment to open and retain windows of advantage.

Work in this Project supports key Army needs and leverages/complements the technical research of several PEs to include 0601102A (Defense Science Research), PE 0602143A (Soldier Lethality Technology) / BB4 (Dismounted Soldier Survivability Materials), AZ5 (Soldier Protection Technology - Vulnerability), BE1 (Support Technology to Mission Command), AZ9 (Soldier-Small Unit Detectability Technology), and PE 0602145A (Next Generation Combat Vehicle Technology) / BI2 (Sensor Protection Technology).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: High-Value Asset Camouflage, Concealment and Decoys Demonstration	-	2.076	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** AZ8 / *Soldier Squad Small Arms Armaments Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: This effort demonstrates innovative camouflage, concealment and deception technologies for high-value assets to defeat advanced current and emerging adversary Intelligence, Surveillance and Reconnaissance (ISR) threats, including multispectral, hyperspectral and Light Detection and Ranging (LiDAR) sensors, and to reduce the probability of detection in multi-domain operations. Matures physics-based models for material and system performance that support probability of detection metrics in the multi-domain operational environment, assisting in closing the capability gap between current camouflage, concealment and deception technologies and defeating enemy sensorial capabilities in future operating environments. ***FY 2020 Plans:*** Mature the performance of advanced camouflage laminate and textile systems and decoy technology on high value assets (i.e. mission command platforms, battle management centers); mature and demonstrate integrated signature management technologies for high-valued assets to improve effectiveness against visual and thermal sensors to enable expeditionary maneuver and mission command during multi-domain operations and to increase survivability of friendly forces while retaining combat power and resilient formations. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** The funding in this effort was realigned to support PE 0603463A (Network C3I Advanced Technology) / AQ1 (Spectrum Obfuscation Advanced Technology).			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.099	-
Accomplishments/Planned Programs Subtotals	-	2.175	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BB3 / *Dismounted Soldier Survivability Equip/Tech Integ*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BB3: *Dismounted Soldier Survivability Equip/Tech Integ*	-	0.000	1.466	1.319	-	1.319	4.064	4.379	4.428	4.428	0.000	20.084

Note

In Fiscal Year 2020 (FY2) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project FF6 Individual Protection

A. Mission Description and Budget Item Justification

This Project matures and demonstrates the integration of Soldier survivability materials and technologies to increase the speed and efficiency of dismounted Soldier movement and maneuver. This Project focuses on reducing Soldier worn equipment weight, improving Soldier and system integration and reducing the dismounted Soldier's detectability, susceptibility, and vulnerability to operational threats. Operational threats are characterized as combat threats (e.g. flame and thermal, blast and ballistic, multispectral sensors, and laser threats), environmental threats (e.g. cold, heat, wet, vector, water contamination, concealment, etc.), and Soldier system components and system limitations (e.g. size, weight, and bulk). This Project includes the demonstration and validation of integrated technologies, novel subsystems/ systems, and test methods.

This Project complements work done in PE 0602143A (Soldier Lethality Technology) / Project BB4 (Dismounted Soldier Survivability Materials).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Dismounted Soldier Survivability Equipment and Technology Integration	-	1.400	1.319
Description: This effort matures and integrates multifunctional protective materials, sub-components, and systems for field demonstrations to significantly increase the survivability of the Soldier through their multi-functional clothing and individual protective equipment. This effort also demonstrates and validates tradeoff analyses in sub-component and system-level designs of ballistic, blast, signature management and integrated protection clothing and equipment technologies.			
FY 2020 Plans: Optimize integration opportunities of Soldier individual protective and loadbearing equipment to realize near term system level weight reduction; demonstrate 3-dimensional (3D) woven and knit garments for cold weather applications to reduce the bulk and weight of the extreme climate protective ensemble; demonstrate operational benefit of advanced textile printing capabilities at the			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BB3 / *Dismounted Soldier Survivability Equip/Tech Integ*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
sub-system and system level for individual equipment that can impart multiple functionalities (e.g. signature management, vector protection, flame resistance, etc.) in a single, more cost-effective process and more durable capability. ***FY 2021 Plans:*** Will mature cold weather clothing technologies to provide weight reduction while improving protection to increase maneuverability of the Soldier in extreme climates; optimize advanced textile printing processes for system integration of multiple functionalities (e.g. signature management, flame resistance, etc.) that will result in cost savings compared to current methods while creating durable clothing systems for Soldiers; integrate and demonstrate a water filtration capability designed to remove toxic chemical threats from indigenous water sources, reducing the need for water carriage and ensuring hydration levels are maintained when in a contested re-supply operational environment. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Lower funding change reflects planned lifecycle of this effort.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.066	-
Accomplishments/Planned Programs Subtotals	-	1.466	1.319

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BB6 / *Physical Augmentation: Adv Tech for Field Demo*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BB6: *Physical Augmentation: Adv Tech for Field Demo*	-	0.000	4.000	2.997	-	2.997	0.000	0.000	0.000	0.000	0.000	6.997

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project J50 Future Warrior Technology Integration

A. Mission Description and Budget Item Justification

This Project investigates human augmentation technologies for enhanced Soldier mobility & lethality to provide an advantage over adversaries during close combat and infantry tasks. This will be achieved by demonstrating and validating operationally ready physical augmentation systems that meet the mission requirements by optimizing movement & maneuver and logistics sustainment task performance.

Work in this Project leverages research of PEs including PE 0602143A (Soldier Lethality Technology) / Project BC2 (Next Gen Mobility & Lethality Tech for Warfighters), Project BB9 (Human Performance Technology for Mobility & Lethality), Project BB5 (Physical Augmentation: Tech for Human Interactions), and PE 0603118A (Soldier Lethality Advanced Technology) / Project BC1 (Human Performance AdvTech for Mobility & Lethality), and Project BB8 (Soldier Centric Advanced Technology). Additionally, work in this Project complements and is coordinated with Medical Research and Development Command and the Veteran Administration's exoskeleton research area. This Project is also coordinated with work performed across the DoD under the Reliance 21 Human Systems Community of Interest: Protection, Sustainment, and Warfighter Performance.

Results of these efforts may transition to the Program Executive Office (PEO) Soldier, Army Training and Doctrine Command (TRADOC), Human Systems Integration (HSI) Directorate (Army G1), and Army Test and Evaluation Command (ATEC).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Wearable Assistive Devices Advanced Technology for Feld Demo	-	3.819	2.997
Description: This effort demonstrates wearable physical augmentation devices to validate Soldier metrics such as endurance, survivability, speed, and strength, as well as system metrics such as power consumption and duration, actuator and controller performance, and integration with Soldier clothing and individual equipment (CIE). Results will demonstrate if the Army will			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BB6 / *Physical Augmentation: Adv Tech for Field Demo*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
benefit from leveraging industry investments and determine if these systems enhance Soldier mobility and lethality in operational environments. ***FY 2020 Plans:*** Conduct representative operational field demonstrations and augmentation/assist devices integration with Soldier CIE to measure operational and physical impacts of augmentation systems and the applicability in military environments; conduct manufacturing and industrial design analyses to measure key augmentation metrics (e.g. power usage and duration, system weight, performance in military relevant environment, and integration with CIE) and physiological impacts to Soldiers using established human performance methodologies. ***FY 2021 Plans:*** Will demonstrate and validate labor-intensive Field Artillery/ADA-focused augmentation/assist devices to optimize human performance; validate technical, physiological, and field demo data of assist devices and exoskeletons with objective measures of human performance, injury prevention/reduction, and identification of potential negative impacts of applying physical assist devices to Soldiers in military environments. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding decreased to support PE 0602143A (Soldier Lethality Technology) / AY8 (Advanced Fire Control Tech) to address fire control acceleration.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.181	-
Accomplishments/Planned Programs Subtotals	-	4.000	2.997

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BB8 / *Soldier Centric Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BB8: *Soldier Centric Advanced Technology*	-	0.000	7.797	6.091	-	6.091	5.358	2.609	2.627	8.573	0.000	33.055

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project J50 Future Warrior Technology Integration

A. Mission Description and Budget Item Justification

This Project demonstrates optimized Warfighting function (e.g. shoot, move, perceive, decide, and communicate) with Soldier centric technologies, systems and/or subsystems designed to augment Soldier ability during missions. This Project capitalizes on operational partnerships by providing Science and Engineering subject matter experts (SMEs) the ability to assist Commanders in course of action development for potential near term solutions and condition setting for mid/far term science objectives. Provides Soldier assessments to optimize, improve performance, validate and integrate technologies and methodologies with users. Research focuses on the Warfighter as the capability and will rapidly iterate user driven solutions that maximize their tactical performance. This Project also matures and demonstrates Soldier centric technologies for the Soldier/Squad Virtual Trainer (S/SVT) to support the Army's Synthetic Training Environment (STE). The STE is the next generation holistic collective training capability that will train units where they will fight, with whom they will fight with, and in complex operational environments to include dense urban and sub-terrain; within the entire range of combined arms maneuver tasks in support of Multi-Domain Operations. The S/SVT system combines and integrates several individual Soldier and Squad training capabilities, STE Squad Capability (SSC), Weapon Skill Development (WSD), Joint Fires Training (JFT), and Use of Force (UoF), into a single capability that can be conducted simultaneously or individually and enable physical movement/exertion related to the execution of Soldier/Marine individual and Squad collective training tasks. The STE will provide the realistic repetitions necessary to fight 25 bloodless battles before the first battle; a Secretary of Defense priority.

This Project is fully coordinated with work done in PE 0602143A (Soldier Lethality Technology) and PE 0603118A (Soldier Lethality Advanced Technology) as well as work conducted by Medical Research & Development Command (MRDC), Army Research Institute (ARI), U.S. Military Academy (USMA), and other academic and industry partners. This work is in partnership with Forces Command (FORSCOM) operational units and the appropriate Training and Doctrine Command (TRADOC) organizations as well as established transition partners, including Army Test and Evaluation Command (ATEC) & Program Executive Offices.

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Operational Unit Partnership and Soldier Touch Point	-	7.443	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BB8 / *Soldier Centric Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: This effort optimizes innovation through Science and Technology touch points with the Operational force, resulting in rapid iteration, concept maturation, integration, validation of laboratory findings, and transition of technologies and methodologies in response to operational unit demand signal. This effort streamlines demonstration, data collection, and technology maturation for near term Doctrine, Organization, Training and Education, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) solutions, enabling faster delivery of materiel and non-materiel products/knowledge refined with direct Soldier input. This body of work allows validated, empirical, assessment of any equipment capability or training intervention as part of the Soldier architecture to inform future acquisition investments, training, and operational trade space decisions. ***FY 2020 Plans:*** Conduct operational user group field demonstration to validate the integration of technologies/methods that maximize the Warfighter?s physical and cognitive performance; conduct large scale field studies in coordination with operational units on mission essential tasks in a realistic, constructive tactical environment employing a cross-assessment of variables such as lightweight equipment, situational awareness tools, sleep, nutrition, human augmentation for load carriage, etc. These assessments will inform multiple training/education and materiel solutions designed to maximize the tactical performance to overcome Soldier limitations in order to achieve overmatch. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned to PE 0603118A (Soldier Lethality Advanced Technology) / BC1 (Human Performance AdvTech for Mobility & Lethality).			
Title: STE Soldier/Squad Virtual Trainer ***Description:*** This effort matures and demonstrates a common battle drill squad-level mixed reality based system that allows for the rapid conduct and repetition of squad-level training. The training system will make it possible to conduct diverse, repeatable and effective training without extensive training infrastructure. This effort matures and demonstrates novel and realistic training environments that provide increased levels of proficiency and readiness through immersive training scenarios conducted at the point of need. ***FY 2021 Plans:*** Will improve the performance of individual Soldier position and orientation tracking and mitigation of day and night lighting effects on augmented reality devices; and demonstrate multi-modal, Soldier interfaces (e.g. haptic suits, 3D sound, acoustics, etc.) into virtual environments. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned from PE 0603118A (Soldier Lethality Advanced Technology) / BE9 (STE Advanced Technology).	-	-	6.091
Title: FY 2020 SBIR/STTR Transfer	-	0.354	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BB8 / *Soldier Centric Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	-	7.797	6.091

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BC1 / *Human Performance AdvTech for Mobility & Lethality*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BC1: *Human Performance AdvTech for Mobility & Lethality*	-	0.000	4.832	11.805	-	11.805	12.079	8.405	5.946	2.085	0.000	45.152

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project J50 Future Warrior Technology Integration

A. Mission Description and Budget Item Justification

This Project matures technologies, methodologies, and human performance models to demonstrate increased mobility & lethality of the individual and small unit to achieve overmatch. It validates and integrates human performance assessment methods and algorithms into training/education, test and evaluation methodologies, and materiel solutions to compare performance impacts between different materiel and non-materiel solutions to maximize the individual Warfighter and small unit. These methods and algorithms have potential to enable the development of aspects of doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) improvements and efficiencies. This Project also uses Soldier assessments to iteratively improve the performance, optimize, and integrate technologies to augment Soldier function (e.g. shoot, move, perceive, decide, and communicate) during missions for maximizing performance. This Project supports the Measuring and Advancing Soldier Tactical Readiness and Effectiveness (MASTR-E) joint Science and Technology program supported by the Office of the Secretary of Defense Close Combat Lethality Task Force.

This work is directly supported by and fully coordinated across PE 0602143A (Soldier Lethality Technology) and PE 0603118A (Soldier Lethality Advanced Technology) as well as work conducted by Medical Research & Development Command (MRDC), Army Research Institute (ARI), U.S. Military Academy (USMA), and other academic and industry partners. This work is in partnership with Forces Command (FORSCOM) operational units and the appropriate Training and Doctrine Command (TRADOC) organizations as well as established transition partners, including Army Test and Evaluation Command (ATEC) & Program Executive Office- Soldier (PEO-S). This project also complements and is fully coordinated with work performed across Army, Navy, and Air Force under the Reliance 21 Human Systems Community of Interest: Systems Interfaces & Cognitive Processes and Protection, Sustainment, and Warfighter Performance.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Close Combat Lethality Task Force, the Army Modernization Strategy and supports the Soldier Lethality Cross Function Team (CFT) efforts.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Soldier/Squad Performance Metrics for Lethality	-	4.612	4.475

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BC1 / *Human Performance AdvTech for Mobility & Lethality*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: This effort validates and matures technologies, methodologies, and human performance models to demonstrate increased Soldier and Small Unit mobility & lethality to achieve overmatch. The effort validates and integrates human performance sensors, models, and design guidance into training/education, test and evaluation, and materiel. The results of this work will allow the Army to develop equipment, systems and training devices that maximize the close combat Soldier and small unit performance in multi-domain operations. ***FY 2020 Plans:*** Demonstrate the performance impacts of biometric Soldier readiness information portrayed to small units via dismounted mission command platforms; demonstrate an enhanced small unit tactical decision making process with measurable and actionable information to maximize physical and cognitive readiness levels; mature and demonstrate assessment tools and methodologies for operational test and evaluation. ***FY 2021 Plans:*** Will mature technologies, methodologies, and human performance models for demonstrating increased mobility & lethality of the individual and small unit to achieve overmatch; optimize and integrate human performance assessment methods and algorithms into training techniques, test and evaluation methodologies, and materiel solution options to provide analyses and performance impacts between materiel and non-materiel solutions to maximize performance of the individual Warfighter and small unit; demonstrate methods and algorithms that have the potential to improve system design and efficiencies. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: Operational Unit Partnership and Soldier Touch Point	-	-	7.330
Description: This effort optimizes innovation through Science and Technology touch points with the Operational force, resulting in rapid iteration, concept maturation, integration, validation of laboratory findings, and transition of technologies and methodologies in response to operational unit demand signal. This effort streamlines demonstration, data collection, and technology maturation for near termDOTMLPF solutions, enabling faster delivery of materiel and non-materiel products/knowledge refined with direct Soldier input. This body of work allows validated, empirical, assessment of any equipment capability or training intervention as part of the Soldier architecture to inform future acquisition investments, training, and operational trade space decisions. ***FY 2021 Plans:*** Will down-select relevant Soldier and squad predictors of tactical performance (e.g. shoot, move, decide); continue to conduct and analyze large scale field studies and data sets from units performing mission essential tasks in realistic, constructive tactical environments; employ a cross-assessment of variables such as equipment use and configuration, situational awareness tools,			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BC1 / *Human Performance AdvTech for Mobility & Lethality*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
sleep levels, nutritional intake, human augmentation assists, etc. to inform training and materiel solutions designed to maximize tactical performance to overcome Soldier limitations and achieve overmatch. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned from PE 0602143A (Soldier Lethality Technology) / BB8 (Soldier Centric Advanced Technology).			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.220	-
Accomplishments/Planned Programs Subtotals	-	4.832	11.805

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BC4 / *Soldier Decision Making&Comms Performance AdvTech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BC4: *Soldier Decision Making&Comms Performance AdvTech*	-	0.000	2.000	1.998	-	1.998	2.038	2.079	2.103	2.124	0.000	12.342

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603015A Next Generation Training & Simulation Systems:
* Project S31 Modeling And Simulation Infrastructure Technology

A. Mission Description and Budget Item Justification

This Project integrates research, theory and applied operations to maximize effectiveness of Soldiers and their equipment. Efforts in this Project support early application of Human Systems Integration (HSI) during Advanced Technology Development by translating research findings into performance-based prototype subsystem, component, and software interface design criteria for use in the Army's requirements definition process and materiel acquisition process for Army Modernization. Application of this work will yield reduced workload, fewer errors, reduced task times, enhanced Soldier protection, user acceptance, and allow the Soldier to extract maximum performance from the equipment. Representative major efforts address Soldier cognitive load and cognitive fusion research, advanced aircraft design to include flight in degraded visual environments, and development of human performance measures and methods to address current and future human system integration challenges. Individual efforts exploit adaptive learning methods and strategies, applied methods to accelerate expertise development, integration of displays for ease of use and optimized situational awareness, and development of technical frameworks for crew automation integration in Command and Control Systems (C2). Efforts also support flight crew decision-aiding and autonomy, advanced crew station design for aircraft, full mission operations in degraded visual environments, and advanced manned-unmanned teaming concepts.

Results of these efforts are transitioned to the Program Executive Offices (PEO), Army Training and Doctrine Command (TRADOC), Human Systems Integration (HSI) Directorate (Army G1), and the Army Test and Evaluation Command (ATEC). This Project complements work done in PE 0602143A (Soldier Lethality Technology) / Project BC3 (Soldier Decision Making & Communications Performance Technology).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Human System Integration Demonstration	-	2.000	1.998
Description: This effort provides early front end analysis and assessment for HSI in Army systems acquisition to influence Advanced Technology Development and prototype design specifications. Research findings translate into performance-			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BC4 / *Soldier Decision Making&Comms Performance AdvTech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
based design specifications and human performance analyses for use in the Army's requirements definition process, training development, and materiel acquisition process. Results of these efforts provide quantified, data-driven analysis on the value of applying HSI early in Army technology development and systems acquisition and are transitioned to technology developers, evaluators, and other Advanced Technology Development stakeholders to include the Future Vertical Lift and Air Missile Defense Program Offices, TRADOC, and the ATEC. ***FY 2020 Plans:*** Provide a technical framework, knowledge products that identify candidate technologies for degraded visual environments (DVE) mitigation, and summaries of HSI work to support the Future Vertical Lift material solution analysis and Milestone A, as well as recommendations to the Fires Center of Excellence for mobile short-range air defense system (M-SHORAD) and the Integrated Air and Missile Defense (IAMD) program. ***FY 2021 Plans:*** Will demonstrate effects of augmented pilot displays on Soldier performance and system effectiveness by conducting human performance and human-system interface analyses on Pilot Degraded Visual Environment Cueing simulations and data collected during Advanced Technology Development flight trials; provide early (Advanced Technology Demonstration) assessment of HSI considerations for advanced crew station technology design and autonomy/crew task automation, thereby reducing life-cycle costs; optimize HSI designs of highest priority Army technologies and systems including advanced crew station technology design and autonomy/crew task automation for enhanced Soldier performance and system effectiveness. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	-	2.000	1.998

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BC8 / *Training Advanced Technology (Other than STE)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BC8: *Training Advanced Technology (Other than STE)*	-	0.000	1.335	4.470	-	4.470	4.501	2.635	2.621	2.571	0.000	18.133

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603115A Next Generation Training & Simulation Systems:
* Project S29 Modeling & Simulation - Advanced Technology Development
* Project S31 Modeling And Simulation Infrastructure Technology

A. Mission Description and Budget Item Justification

This Project matures and demonstrates advanced live training technologies in support of the Army's need for live simulations that accurately replicate and realistically represent the effects of current and future weapons systems during force-on-force and force-on-target training. Integration of the Live/Mixed reality into a single synthetic training environment will modernize the current Live Training Environment and allow fair fight engagements across all training environments and training devices.

This effort complements work done in 0602143A (Soldier Lethality Technology) / Project BC7 (Training Technology (Other than Synthetic Training Environment (STE)).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Live Training Technology Applications	-	1.335	-
Description: This effort investigates technology to enhance the fidelity of live training systems and develops future live training capabilities for conducting force-on-force, combined arms exercises to enhance readiness at Army home stations and Combat Training Centers.			
FY 2020 Plans: Mature and demonstrate integrated software and hardware components such as artificial intelligence algorithms to aid in target recognition, weapon modeling, next generation magnetometers, high resolution three dimensional terrain, and weapon orientation sensors to enhance live training technology.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BC8 / *Training Advanced Technology (Other than STE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
The funding in this effort was realigned to support PE 0603118A (Soldier Advanced Lethality Technology) / BE9 (STE Advanced Technology) to accelerate live training technology.			
Title: Synthetic Training Environment (STE): Reconfigurable Virtual Trainer ***Description:*** This effort provides combined arms collective training for military platforms through the modernization and performance improvement of current training systems to be reconfigurable, transportable, and immersive. It exploits relevant mixed reality physical and functional fidelity cues informing maturation and demonstration activities for reconfigurable collective training capabilities. The results of this effort will improve crew performance through transfer of skills learned in reconfigurable training system to the real world. ***FY 2021 Plans:*** Will provide a standardized evaluation method for rapid, repeatable, validated simulated environment comparisons enabling concrete determination of simulated environment capability to meet learning objectives. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned from PE 0603118A (Soldier Lethality Advanced Technology) / BE9 (STE Adv Technology).	-	-	3.360
Title: STE: Live Training Applications ***Description:*** This effort exploits technology to demonstrate enhanced fidelity of live training systems and develops future live training capabilities for conducting force-on-force, combined arms exercises to enhance readiness at Army home stations and Combat Training Centers. ***FY 2021 Plans:*** Will demonstrate software applications and procedures to measure and calibrate eBullet telemetry data; mature prototype devices to demonstrate the geo-pairing capabilities of the eBullet; and optimize the accuracy of the Weapon Orientation Module device to improve measurements of weapon azimuth, elevation, and cant at low power and cost. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned from PE 0603118A (Soldier Lethality Advanced Technology) / BE9 (STE Adv Technology).	-	-	1.110
Accomplishments/Planned Programs Subtotals	-	1.335	4.470

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BC8 / *Training Advanced Technology (Other than STE)*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BC9 / *Adv Soldier Sensors/Displays AdvTech for Dismounts*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BC9: *Adv Soldier Sensors/ Displays AdvTech for Dismounts*	-	0.000	13.659	10.999	-	10.999	16.838	33.619	33.961	33.964	0.000	143.040

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603606A Landmine Warfare and Barrier Advanced Technology:
* Project 608 Countermine & Bar Development
PE 0603710A Night Vision Advanced Technology:
* Project K70 Night Vision Advanced Technology

A. Mission Description and Budget Item Justification

This Project matures, optimizes, and demonstrates fully digital sensor systems, architectures, and interfacing capabilities to fuse sensors, and network situational understanding information and targeting capabilities to enable maintained mounted and dismounted visual advantage, increased situational awareness, decreased fratricide, and decreased response times to all threats in all environments. Work in this Project supports the Army Science and Technology Soldier Lethality, Next Generation Combat Vehicle, and Future Vertical Lift Army Modernization priorities.

This effort complements work done in PE 0602143A (Soldier Lethality Technology) / BD1 (Advanced Soldier Sensors/Displays Tech for Dismounts).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and supports the Soldier Lethality Cross Functional Team (CFT).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Advanced Soldier Sensors/Displays Advanced Technology for Dismounts	-	13.659	10.999
Description: This effort will mature and demonstrate low cost Soldier-borne situational understanding systems with greater fidelity for improved maneuver and lethality, as well as mature automated algorithms to increase probability of recognition/identification and tracking of threats in all environments.			
FY 2020 Plans: Mature augmented reality situational understanding and visual three dimensional (3D) information capabilities for mounted and dismounted Soldiers; provide an overlay and display of 3D point cloud information to Soldiers for increased scene context in near peer environments; mature explosive and hazard detection components for integration with adaptable target detection algorithms			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BC9 / *Adv Soldier Sensors/Displays AdvTech for Dismounts*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
to create a baseline capability that increases Soldiers situational understanding of threats in near-peer environments; validate sensor designs. ***FY 2021 Plans:*** Will optimize augmented reality (AR) capabilities for mounted and dismounted Soldiers; mature AR enabled common operating picture (COP) technologies to provide shared situational understanding between mounted and dismounted Soldiers; exploit existing aided target recognition (AiTR) algorithms to reduce Soldier target acquisition timelines; mature multi-source data fusion and autonomous threat detection capabilities; mature approaches for overlays and displays of 3D point cloud information; finalize requirement allocations for user platforms to achieve AR capability and provide suggested architecture for platforms to support. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease represents adjustments to accelerate Advanced Low Light Level Sensors in PE 0602143 (Soldier Lethality Technology) / BD1 (Advanced Soldier Sensors/Displays Technologies for Dismounts).			
Accomplishments/Planned Programs Subtotals	-	13.659	10.999

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BD7 / *Soldier Sys Interfaces/Integration-Sensor AdvTech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BD7: *Soldier Sys Interfaces/ Integration-Sensor AdvTech*	-	0.000	9.671	9.060	-	9.060	8.478	8.645	8.983	9.074	0.000	53.911

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project J50 Future Warrior Technology Integration

A. Mission Description and Budget Item Justification

This Project will integrate technologies for sensing, processing, displaying information, interfacing with users, and cognitive improvement to enhance Soldier & Small Unit situational awareness & understanding. This effort will integrate battlefield and body worn sensors and data fusion algorithms to provide the dismounted Small Unit leader with clear, actionable information for making well informed, rapid, tactical decisions. This effort will mature and integrate advanced dismounted Soldier robotic and autonomous systems technologies to demonstrate autonomous navigation, manned-unmanned teaming, and networked reconnaissance to improve Soldier lethality, situational awareness, and survivability during tactical operations.

Work in this Project complements several PEs to include PE 0602143A (Soldier Lethatlity Technology) / BD6 (Soldier Sys Interfaces/Integration - Sensor Technology), BB9 (Human Performance Tech for Mobility & Lethality), and PE 0603118A (Soldier Lethality Advanced Technology) / BC9 (Adv Soldier Sensors/Displays AdvTech for Dismounts).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and the Soldier Lethality Cross Functional Team (CFT).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Soldier System Interfaces & Integration (Sensor Advanced Technology)	-	9.671	9.060
Description: This effort will integrate battlefield and body-worn sensors and mature data fusion algorithms to provide the dismounted Small Unit leader with clear, actionable information to make well informed, rapid, tactical decisions. This effort will mature and integrate advanced dismounted Soldier robotic and autonomous systems technologies to demonstrate autonomous navigation, manned-unmanned teaming, and networked reconnaissance to improve Soldier lethality, situational awareness, and survivability during tactical operations.			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BD7 / *Soldier Sys Interfaces/Integration-Sensor AdvTech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Integrate battlefield and Soldier worn sensors with body area networks and the Nett Warrior architecture; mature and integrate sensor fusion algorithms and user interfaces to provide actionable and timely information to the dismounted Soldier and small unit; demonstrate integrated sensor capabilities in lab and virtual environments; mature and integrate algorithms for dismounted Small Unmanned Aerial Systems (SUAS) to enable autonomous operations; mature soldier-robotic user interfaces to minimize Soldier dedicated control of robotic assets; mature and demonstrate modular robotics architectures to allow for rapid integration and demonstration of advanced capabilities; integrate dismounted robotic systems with Nett Warrior to enable sharing of tactical data between Small Units. ***FY 2021 Plans:*** Will continue to integrate battlefield and Soldier worn sensors with body area networks and the Nett Warrior architecture; mature and integrate advanced algorithms and user interfaces for Small Unit mission planning, human performance sensing, Soldier worn equipment sensing, and remote sensing; conduct field demonstrations of integrated battlefield and Soldier worn sensor systems to validate performance and operation; mature algorithms, user interfaces, and architectures to enable autonomous tactical SUAS and conduct field demonstrations to validate the performance and operation of the system; integrate SUAS with the Integrated Visual Augmentation System (IVAS) and Nett Warrior to enable sharing of networked tactical data between small units for increased Soldier lethality. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	-	9.671	9.060

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BD9 / *Soldier & Sm Unit Tactical Energy AdvTech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BD9: *Soldier & Sm Unit Tactical Energy AdvTech*	-	0.000	3.101	3.160	-	3.160	3.223	4.296	4.358	4.402	0.000	22.540

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project J50 Future Warrior Technology Integration

A. Mission Description and Budget Item Justification

This Project will demonstrate advanced Power and Energy (P&E) technologies for the dismounted Soldier to lighten equipment load, reduce resupply need, and enhance mobility. This Proj will conduct Soldier and Small Unit power and energy technology maturation, integration with clothing and individual equipment, technical analysis, and operational assessment.

Work in this Project complements several PEs to include PE 0602143A (Soldier Lethality Technology) / BD6 (Soldier Sys Interfaces/Integration - Sensor Tech), BB9 (Human Performance Tech for Mobility & Lethality), BD8 (Soldier & Sm Unit Tactical Energy Tech), and PE 0603118A (Soldier Lethality Advanced Technology) / BC9 (Adv Soldier Sensors/Displays AdvTech for Dismounts).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and the Soldier Lethality Cross Functional Team (CFT).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Dismounted Soldier Power and Energy	-	3.101	3.160
Description: This effort matures, integrates, and demonstrates advanced Soldier Power and Energy (P&E) technologies that are used to power the dismounted Soldier and small unit's command and control, communications, computers, and sensor devices during tactical operations. This work will result in the Army being able to provide the power and energy the future Soldier requires to operate effectively, while doing so at a reduced physical burden.			
FY 2020 Plans: Mature, integrate, and demonstrate advanced dismounted Soldier power and energy technologies, including lightweight, energy dense power sources and efficient power generation technologies to reduce the Soldier?s physical burden and increase the run-time of electronics; demonstrate Soldier power management and distribution technologies to efficiently manage the transfer			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BD9 / *Soldier & Sm Unit Tactical Energy AdvTech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
of power on the Soldier; analyze and assess dismounted Soldier power and energy technologies during laboratory and field experiments to characterize their performance and validate their operation. ***FY 2021 Plans:*** Will mature, integrate, and demonstrate technologies for increasing the run-time of rechargeable battery technologies, specifically Si-Anode based rechargeable batteries configured to centrally power Soldier electronic systems, to reduce the weight and physical burden on Soldiers; conduct field demonstrations to validate battery operation; integrate efficient Soldier power generation technologies such as advanced fuel cell systems with Soldier tactical electronic systems and conduct field demonstrations to characterize system performance and validate operational capabilities. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	-	3.101	3.160

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BE2 / *Joint Service Combat Feeding Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BE2: *Joint Service Combat Feeding Advanced Technology*	-	0.000	1.782	2.417	-	2.417	2.454	2.046	2.069	2.069	0.000	12.837

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project C07 Joint Service Combat Feeding Tech Demo

A. Mission Description and Budget Item Justification

This Project matures and demonstrates combat ration and field feeding technologies to optimize Warfighter performance, decrease the risk of exposure to chemical and biological contaminants in foods, and reduce the logistics burden to enable semi-independent operations. The Army serves as the Executive Agent for this Department of Defense (DoD) program, with oversight and coordination provided by the DoD Combat Feeding Research and Engineering Board.

This Project matures and demonstrates work done in PE 0602143A (Soldier Lethality Technology) / Project BE3 (Joint Service Combat Feeding Technology).

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Joint Service Combat Feeding Advanced Technology Demonstration	-	1.701	2.417
Description: This effort matures and demonstrates combat ration and field feeding technologies to optimize Warfighter performance, decrease risk of exposure to chemical and biological contaminants in foods, and reduce the logistics burden to enable semi-independent operations.			
FY 2020 Plans: Mature alternative packaging configurations to reduce weight/logistics burden and provide flexibility in rations processing applications to enable semi-independent operations; mature novel food processing and nutritional intervention strategies to validate Close Combat Assault Ration concept for reduced Soldier/squad reliance on ration resupply during extended operations; demonstrate densification technologies that maximize nutrient value while minimizing ration weight; demonstrate portable, rapid			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BE2 / *Joint Service Combat Feeding Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
biosensor platforms to improve food safety and reduce risk of food-borne illness on the battlefield; transition demonstrated refrigeration technology that reduces reliance on hydrofluorocarbons to Product Manager ? Force Sustainment Systems. ***FY 2021 Plans:*** Will demonstrate multispectral imaging of ration components for identifying potential biological contamination; optimize rapid identification of food pathogen viability to provide real-time food safety information to commanders; validate chemical agent permeability in ration packaging in support of Chemical Biological Radiological Nuclear (CBRN) threats; validate nutrient stability in Close Combat Assault Ration components to ensure nutrient retention during processing and prolonged storage; and continue maturing and demonstrating nutrient densification technologies and alternative packaging configurations to reduce weight/logistics burden and enable semi-independent operations. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding increase from PE 0602143A (Soldier Lethality Technology) / BE3 (Joint Service Combat Feeding Technology) to support demonstrations in FY21.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.081	-
Accomplishments/Planned Programs Subtotals	-	1.782	2.417

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army											Date: February 2020	
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*				Project (Number/Name) BE5 / *Personnel & Airdrop Safety Advanced Technology*			
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
BE5: *Personnel & Airdrop Safety Advanced Technology*	-	0.000	6.770	6.293	-	6.293	6.964	6.954	7.046	7.117	0.000	41.144

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603001A Warfighter Advanced Technology:
* Project 242 Airdrop Equipment
* Project XW6 Small Unit Expeditionary Maneuver

A. Mission Description and Budget Item Justification

This Project matures and demonstrates equipment and innovative techniques for precision aerial delivery of cargo and personnel. Technologies support Army Modernization Priority, Soldier Lethality. Aerial delivery is a key capability for rapid force projection and global precision delivery to support the mission readiness profile for Global Response Force (GRF). These efforts are designed to advance state of the art precision delivery technologies such as parachutes; guidance, navigation, and control (GNC) components and subsystems; tracking sensors; software algorithms; and safety rigging that integrates with currently equipped aircraft, unmanned aerial systems (UAS), and advanced rotary wing aircraft. These efforts provide the Warfighter with highly accurate, timely cargo/payload delivery and resupply in all terrain and weather conditions. Precision delivery/resupply reduces vulnerability of ground Soldiers, aircraft, and aircrew. Precision aerial delivery supports remote warfare with activities such as placement of battlefield sensors and reduction of Soldier load.

This Project complements work done in the Science & Technology Precision, Navigation and Timing Modernization priority.

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Personnel & Airdrop Safety Advanced Technology	-	6.462	6.293
Description: This effort matures and demonstrates parachute materials and designs, precision guidance and navigation software and hardware, tracking sensors, and safety devices to increase the accuracy of delivering cargo to remote locations and/or complex terrains in global positioning system (GPS) denied environments. This effort also provides technologies that increase safety during personnel insertions into theaters of operation. This effort supports capability demonstrations for mitigating the Army' s challenge of overburdened Soldiers through the use of tactical aerial resupply technologies, as well as supporting Anti-			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BE5 / *Personnel & Airdrop Safety Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Access/Area Denial (A2/ AD) and manned-unmanned teaming (MUM-T) operational concepts by demonstrating airdrop from non-traditional platforms. ***FY 2020 Plans:*** Demonstrate precision aerial delivery software and hardware components in a GPS denied/degraded environment as well as in Dense, Urban, and Complex Terrain. Efforts will provide high precision resupply in austere environments and expand the operational footprint of the Soldier/Squad without significant impact to existing logistics requirements. ***FY 2021 Plans:*** Will demonstrate novel parachute control methods in all phases of flight and for application across a broad range of airdrop systems to introduce advantageous changes in fundamental flight performance and to support precision guidance of parachutes in complex, non-traditional airdrop environments. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.308	-
Accomplishments/Planned Programs Subtotals	-	6.770	6.293

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BE9 / *STE Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BE9: *STE Advanced Technology*	-	0.000	22.480	13.190	-	13.190	12.075	18.083	18.327	18.378	0.000	102.533

Note

In Fiscal Year 2020 (FY20) this Project was realigned from:
Program Element (PE) 0603115A Next Generation Training & Simulation Systems:
* Project S29 Modeling & Simulation - Advanced Technology Development
* Project S31 Modeling And Simulation Infrastructure Technology

A. Mission Description and Budget Item Justification

This Project matures and demonstrates technologies supporting the Army's Synthetic Training Environment (STE). The Synthetic Training Environment (STE) is the next generation holistic collective training capability that will train units where they will fight, with whom they will fight with, and in complex operational environments to include dense urban and sub-terrain; within the entire range of combined arms maneuver tasks in support of Multi- Domain Operations. STE Information Systems (STE-IS) delivers the Common Synthetic Environment consisting of Global Terrain/One World Terrain (OWT), Training Simulation Software (TSS), and Training Management Tools (TMT). The STE will be available where training occurs (home station, combat training centers, armories, institutions, shipboard, deployed) and will include Air and Ground Reconfigurable Virtual Collective Trainers (RVCTs), a Soldier/Squad Virtual Training (S/SVT), and a live training capability. The STE will be cloud-enabled, compatible with the Army Enterprise Network, and service-based through the Common Operating Environment, including Live and Constructive. The STE will provide the realistic repetitions necessary to fight 25 bloodless battles before the first battle; a Secretary of Defense priority.

This Project complements work done in PE 0602143A (Soldier Lethality Technology) / Project BE8 (Synthetic Training Environment (STE) Technology).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and supports the STE Cross Functional Team efforts.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: STE Soldier/Squad Virtual Trainer	-	5.887	-
Description: This effort matures and demonstrates a common battle drill squad-level mixed reality based system that allows for the rapid conduct and repetition of Squad-level training. The training system will make it possible to conduct diverse, repeatable and effective training without extensive training infrastructure. This effort also matures and demonstrates novel and realistic training environments that provide increased levels of proficiency and readiness through immersive training scenarios conducted at the point of need.			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BE9 / *STE Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2020 Plans: Demonstrate advancements based on STE accelerated tasks to include dynamic occlusion algorithms for complex urban environments and advanced position tracking for spatialization. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding realigned to PE 0603118A (Soldier Lethality Advanced Technology) / BB8 (Soldier Centric Advanced Technology).			
Title: STE Training Management Tool ***Description:*** This effort matures and demonstrates STE-relevant tools and technologies that automatically adapt training to the learner's skill level, conduct intelligent after action reviews, automate team training assessments, and enable the visualization of and interaction with a Mixed Reality Common Operating Picture of the battlespace. ***FY 2020 Plans:*** Mature and demonstrate an authoring tool for individual training scenarios; demonstrate ways to automatically tailor training based on existing learner records; and demonstrate models that predict individual competencies and tailor training to target deficiencies; demonstrate large-scale, mixed reality Common Operating Picture visualization and interaction of emerging STE technologies. ***FY 2021 Plans:*** Will validate prototypes and methods for conducting automated team assessments during STE-relevant use-cases; demonstrate artificial intelligence (AI) methods to support self-optimizing systems that produce skill retention and transfer into the operational environment; demonstrate human factors elements for information visualization, multimodal interaction, and human performance assessment using a distributed interactive visualization architecture enabling real-time collaborative mission planning, rehearsal, command and control, training, and after action review. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding increase from PE 0602143A (Soldier Lethality Technology) / BC7 (Training Technology (Other than STE)) to support AI methods for self-optimizing systems.	-	1.118	3.371
Title: STE One World Terrain ***Description:*** This effort matures and demonstrates tools and methods that improve the speed, fidelity and delivery of synthetic terrain and environmental data needed to support mission rehearsal and training in a representation of the globe, fully accessible through the Army network and usable by all simulation trainers. This effort also matures and develops complex representations (including megacities and subterranean) of the operational environment and the Multi-Domain battlefield in synthetic training environments. ***FY 2020 Plans:***	-	5.702	2.814

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BE9 / *STE Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Demonstrate applications that enhance environmental representations commonly found in urban areas including Megacities and underground environments; exploit and modify non-traditional data sources such as Open Street Maps, crowd-sourced information, and other available data from which geo-specific information can guide placement; enhance the environment with procedural placement of appropriate urban feature models; exploit and modify a common terrain engine representation for use across game engines (i.e. consumed without modification); mature the commonality and differences between candidate game engines to derive common representations for environment elements (terrain surface, feature meshes, textures/materials, etc.); optimize terrain reasoning data needs, especially those not typically represented in game engines; exploit a proposed common representation that is flexible and compatible with multiple game engines; validate the tradeoffs between compiled/derived formats versus close-to-source formats and articulate how engines with specialized internal formats would leverage the proposed representation; and demonstrate the viability of the proposed representation in at least three different game engines. ***FY 2021 Plans:*** Will demonstrate tools that rapidly and automatically process terrain source data into a single representation; mature tools to support conducting uninterrupted training in sub-surface, surface, and infrastructure within dense urban environments including: automated underground geometry and feature generation, representation of key civilian infrastructure components via scenario generation tools, representation of complex road networks and controls, and enabling rich attribution of hydrological features and complex structures. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: STE Training Simulation Software ***Description:*** This effort matures and demonstrates technologies that support Multi-Domain Operations modeling and simulation configuration and scalability technologies for collective training. In addition, matures and demonstrates technologies that allow the synthesis of robust military behaviors that enable the scaling of Synthetic Training Environment (STE) collective training configurations and delivery to the Point of Need through the exploitation of emerging computing and networking technologies that optimize computing architectures for integrating components (models, behaviors, data, etc.) of the Training Simulation Software (TSS). ***FY 2020 Plans:*** Mature models of Multi-Domain Operations to include cyber effects and patterns of life, demonstrating state-of-the-art simulated entities and concurrent role-players in a relevant collective training exercise. In addition, mature methods to create simulation agnostic behavior algorithms from authoritative sources to show broad applicability to multi-echelon collective training; demonstrate hybrid scalability and Point of Need technologies. ***FY 2021 Plans:***	-	8.782	6.127

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BE9 / *STE Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Will demonstrate enabling computing and networking technologies to deliver a complex synthetic operational environment to the point of need; validate architecture strategies for integrating components (models, behaviors, data, etc.) of the Training Simulation Software (TSS) to enable reusability, extensibility, reliability and maintainability; validate models and data representing critical aspects of the operational environment integrated in to the STE TSS in support of collective training use cases; demonstrate synthetic representations of Multi-Domain Operations to include patterns of life and cyber effects; improve the realism of military behaviors representing critical aspects of the operational environment using novel AI techniques. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: Weapons Effects for STE ***Description:*** This effort matures and demonstrates structural weapon effects and projectile penetration models and algorithms to integrate within the Army?s STE. This effort provides One World Terrain with accurate representation of the effects of threat weapons (such as small arms, projectiles, indirect fire, and improvised explosives device attacks) and display of realistic vulnerabilities in the battlespace. ***FY 2021 Plans:*** Will improve performance of enhanced algorithms for predicting blast effects from various weapons and explosive events to include predicting structural damage in complex terrain; mature and provide improved algorithms for predicting large projectile fragmentation and penetration effects on critical assets. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding was realigned from PE 0603119A (Ground Advanced Technology) / BL6 (Expedient Passive Protection Advanced Technology) to support demonstration of weapons effects directly related to STE.	-	-	0.878
Title: FY 2020 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.991	-
Accomplishments/Planned Programs Subtotals	-	22.480	13.190

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603118A / *Soldier Lethality Advanced Technology*	**Project (Number/Name)** BE9 / *STE Advanced Technology*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603118A / *Soldier Lethality Advanced Technology*	Project (Number/Name) BS8 / *Soldier Lethality Advanced Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
BS8: *Soldier Lethality Advanced Technology*	-	0.000	17.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.500

Note

Congressional Interest Item funding provided for Soldier Lethality Advanced Technology.

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for Soldier Lethality Advanced Technology.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020
Congressional Add: Subterranean Warfighter Advanced Technology ***FY 2020 Plans:*** Subterranean Warfighter Advanced Technology	-	1.500
Congressional Add: Rapid Safe Advanced Materials ***FY 2020 Plans:*** Rapid Safe Advanced Materials	-	6.000
Congressional Add: Multi-Spectral Sensor Mitigation ***FY 2020 Plans:*** Multi-Spectral Sensor Mitigation	-	5.000
Congressional Add: Helmet Pad Suspension Systems ***FY 2020 Plans:*** Helmet Pad Suspension Systems	-	5.000
Congressional Adds Subtotals	-	17.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A