Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	23.905	25.925	25.971	-	25.971	28.265	30.578	32.881	33.195	Continuing	Continuing
CF2: *Integrated Soldier Systems Prototyping (SL CFT)*	-	2.449	3.077	3.858	-	3.858	3.766	3.802	4.064	4.103	0.000	25.119
ET8: *Personnel Airdrop System Development*	-	1.219	1.155	1.853	-	1.853	2.254	0.951	2.355	2.378	Continuing	Continuing
S53: *Clothing And Equipment*	-	1.742	6.504	4.578	-	4.578	4.799	8.312	8.957	9.044	Continuing	Continuing
S54: *Small Arms Improvement*	-	16.216	10.911	9.248	-	9.248	9.286	9.366	9.359	9.448	0.000	73.834
VS4: *Soldier Protective Equipment*	-	2.279	4.278	6.434	-	6.434	8.160	8.147	8.146	8.222	Continuing	Continuing

A. Mission Description and Budget Item Justification

A portion of this funding line is directly aligned to the Soldier Lethality Army Modernization Priority. This Program Element (PE), Advanced Component Development and Prototypes, manages the Soldier as a system to increase combat effectiveness, test and deliver tangible products that save Soldiers lives and improve combat capability. The PE provides funding for evaluating, developing, and testing emerging technologies and critical Soldier support systems to reduce technology risk.

CF2
The Integrated Squad effort includes the completion of the Adaptive Squad Architecture (ASA), Squad Performance Metrics (SPM) and the Soldier Integration Facility (SIF) programs. These efforts are Program Executive Office-Soldier (PEO-S) led and will develop a full system architecture for the Soldier and the Squad paired with a constructive and live integration capability with the SIF. This will be accomplished by developing Interface Control Documents (ICDs) in order to provide common established interfaces for internal and external stakeholders who will interface on or with the Soldier/Squad platforms. The critical elements are the development of the "Soldiers as Integrated Weapons Systems" and "Squad as an Integrated Combat Platform" vision based on threat, operational environment and collaboration with internal and external stakeholders to inform investment decisions out to Fiscal Year (FY) 2050. The ASA/SPM/SIF will develop a metric-based approach that will include virtual, constructive and live evaluations and tools across the Department of Defense (DoD), academia and industry which will be used for senior leaders to make deliberate decisions based on the analysis of Soldier/Squad performance.

ET8
Personnel Airdrop System improves Low Altitude and High Altitude personnel parachutes and associated equipment to include canopy improvement based on integration of new technology with the goal of enhancing the insertion capability and safety of the airborne Soldier and increasing the performance, reliability, and durability of personnel airdrop equipment.

S53

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603827A *I Soldier Systems - Advanced Development*

This Project evaluates and integrates technologies and representative or prototype systems that help expedite Soldier Clothing and Individual Equipment technology transition from the laboratory to operational use. Efforts focus on proving out commonality across as broad a spectrum of users as possible to provide a modular, integrated uniform/clothing system from skin out and head-to-toe. It funds efforts to transition new technologies and domestically available fabrics with Flame Resistant (FR), moisture wicking, insect protection and camouflage technologies, including integration of fabrics appropriate for uniforms and equipment used in jungle/tropical and arctic environments. New technologies are identified to monitor health and improve Soldier survivability, reduce weight, and improve affordability, mobility and comfort in combat and training/administrative environments. Includes integration and interface on the Soldier system.

S54
The Small Arms Improvement Advanced Component Development and Prototypes (ACD&P) program provides funds to mature, demonstrate, test and evaluate emerging technology from Budget Activity (BA) 3 Program Element 0603607A Joint Service Small Arms Program (JSSAP) Project 627 Defense Advanced Research Projects Agency (DARPA), Department of Energy National Laboratories, Research Development & Engineering Centers (RDECs) and other domestic and foreign sources for small arms weapon systems and technology. Small arm weapon systems include weapons ranging up to 40 millimeter in caliber. Current and future efforts focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, usability, training effectiveness and reliability of weapons to include ammunition when developing and/or evaluating standard and non-standard weapons. Focus areas include the maturing of technology through testing and evaluation of sub-system or system prototypes which demonstrates light weight materials, wear resistant/protective/anti-reflective coatings, observation/situational awareness improvements, human-systems integration, robotic armament capability, non-lethal capability, and equipment enhancements. Benefits include continuous improvements to small arms weapon systems, fire control equipment, optics, gun barrels, training devices, suppressors, component mounts, weapon mounts, and weapon/ammunition interface. Includes costs associated with efforts for integration and interface of products on Soldiers' head, body and weapons.

VS4
This Project supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Personal Protective Equipment (PPE) technology transition from the laboratory to operational use.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	23.184	17.459	0.000	-	0.000
Current President's Budget	23.905	25.925	25.971	-	25.971
Total Adjustments	0.721	8.466	25.971	-	25.971
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	8.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.721	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	25.971	-	25.971
• FFRDC Transfer	-	-0.034	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603827A *I Soldier Systems - Advanced Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: S53: *Clothing And Equipment*		
Congressional Add: *Congressional Add for Multi-spectral Signature Management*	-	4.500
Congressional Add Subtotals for Project: S53	-	4.500
Project: S54: *Small Arms Improvement*		
Congressional Add: *New Weapon Systems Congressional Add*	-	4.000
Congressional Add Subtotals for Project: S54	-	4.000
Congressional Add Totals for all Projects	-	8.500

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) CF2 / *Integrated Soldier Systems Prototyping (SL CFT)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
CF2: *Integrated Soldier Systems Prototyping (SL CFT)*	-	2.449	3.077	3.858	-	3.858	3.766	3.802	4.064	4.103	0.000	25.119
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Verify and maintain tools that provide Systems Engineering, Configuration Management, and Evaluations in a virtual and physical environment. Verify and maintain the Adaptive Squad Architecture (ASA) and Squad Performance Metrics (SPM) with emphasis on development of Interface Control Documents (ICDs), specifically to support the rapid integration of the Soldier Lethality Cross Functional Team (SL CFT) priority programs with all other dismounted Soldier equipment. Prototype capabilities for evaluation and integration. Execute evaluation of new measurements and methodologies from the S&T community, execute system level evaluation environments, and support Soldier system modeling. Funding for this project aligns with the Army's priorities in support of the National Defense Strategy and is a priority of the Soldier Lethality Cross Functional Team.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Integrated Soldier Systems Prototyping	2.449	2.963	3.858
Description: Verify and maintain tools that provide Systems Engineering, Configuration Management, and Evaluations in a virtual and physical environment. Verify and maintain the ASA and SPM with emphasis on development of ICDs, specifically to support the rapid integration of the Soldier Lethality Cross Functional Team (SL CFT) priority programs with all other equipment the dismounted Soldier will use. Provide prototyping of capabilities for evaluation and integration. Execute evaluation of new measurements and methodologies from the S&T community, execute system level evaluation environments, and support Soldier system modeling. Funding for this project aligns with the Army's priorities in support of the National Defense Strategy and is a priority of the Soldier Lethality Cross Functional Team. ***FY 2022 Plans:*** Continue to develop components, algorithms, and demonstrations in support of Squad as an Integrated Combat Platform. ***FY 2023 Plans:*** Continue to develop components, algorithms, and demonstrations in support of Squad as an Integrated Combat Platform. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase supports ongoing development of the Adaptive Squad Architecture and Squad Performance Metrics, plus integration events in the Soldier Integration Facility.			
Title: FY 2022 SBIR/STTR Transfer	-	0.114	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** CF2 / *Integrated Soldier Systems Prototyping (SL CFT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:*** FY 2022 SBIR/STTR Transfer in accordance with Title 15 USC ?638. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 SBIR/STTR Transfer in accordance with Title 15 USC ?638.			
Accomplishments/Planned Programs Subtotals	2.449	3.077	3.858

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• CF3: *Integrated Soldier Systems (SL CFT)*	4.429	4.371	4.403	-	4.403	4.501	4.539	4.631	4.674	0.000	31.548

Remarks

D. Acquisition Strategy

Develop and validate the verification and operation of the ASA tools (Configuration Database (CD), Architectural Assessment Tool (AAT), Squad Performance Metrics (SPM)) under full and open competition. Attempt to utilize one vendor for, at a minimum, maintenance of the CD and AAT. Conduct evaluations to support the SPM, with the Government acting as the lead developer.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) CF2 / *Integrated Soldier Systems Prototyping (SL CFT)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FY 2022 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.114		-		-		-	0.000	0.114	-
		Subtotal	-	-		0.114		-		-		-	0.000	0.114	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Adaptive Squad Architecture (ASA) Squad Performance Metrics (SPM)	C/FFP	Various : Various	0.374	0.931	Jan 2021	0.607	Jan 2022	1.275	Jan 2023	-		1.275	Continuing	Continuing	Continuing
		Subtotal	0.374	0.931		0.607		1.275		-		1.275	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ASA/SPM Test & Eval	C/FFP	Various : various	1.504	1.518	Dec 2020	2.356	Dec 2021	2.583	Jan 2023	-		2.583	Continuing	Continuing	Continuing
		Subtotal	1.504	1.518		2.356		2.583		-		2.583	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.878	2.449		3.077		3.858		-		3.858	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** CF2 / *Integrated Soldier Systems Prototyping (SL CFT)*

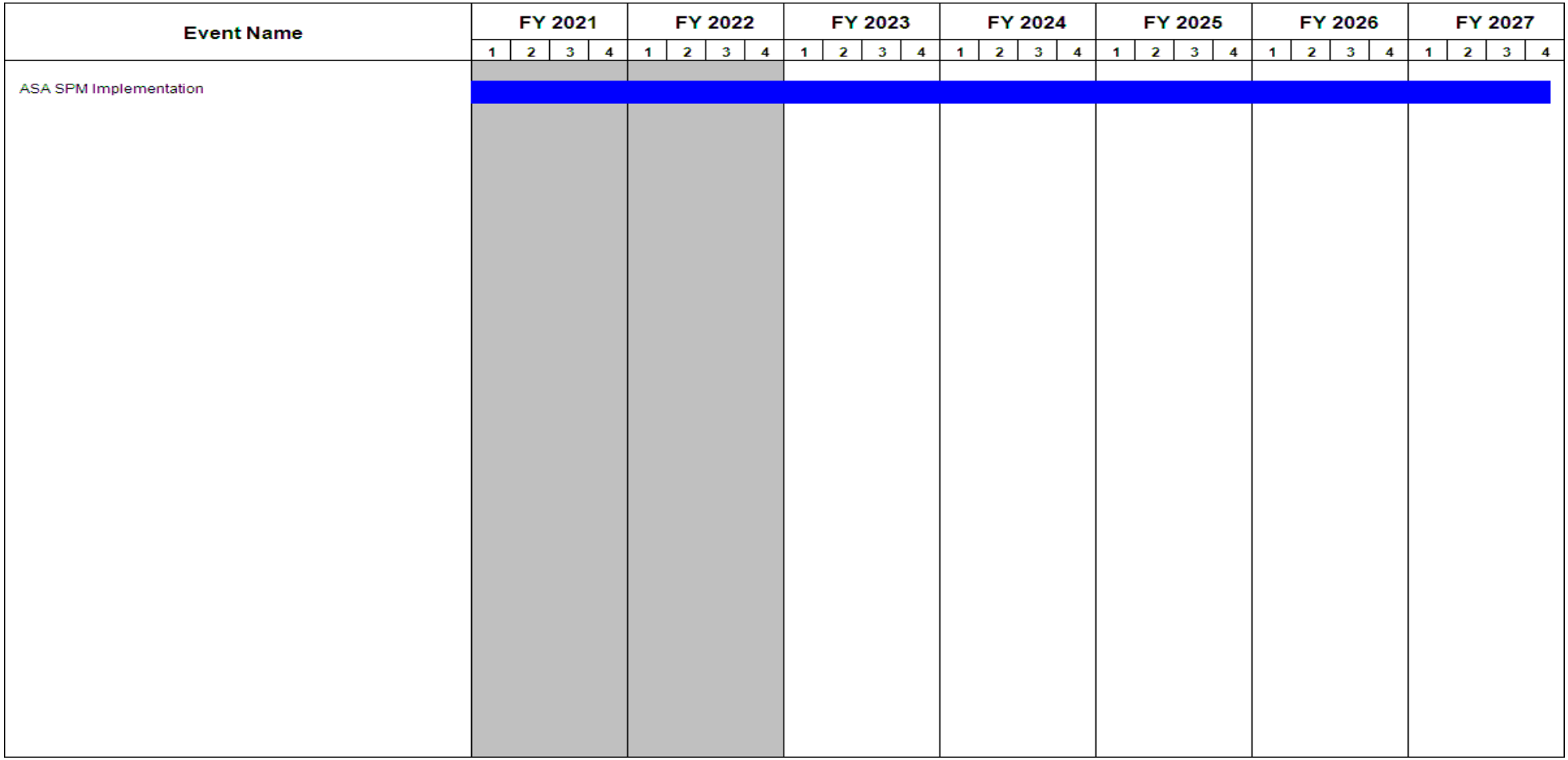


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** CF2 / *Integrated Soldier Systems Prototyping (SL CFT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ASA SPM Implementation	2	2020	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) ET8 / *Personnel Airdrop System Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
ET8: *Personnel Airdrop System Development*	-	1.219	1.155	1.853	-	1.853	2.254	0.951	2.355	2.378	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this project supports the Army's Cross Functional Teams (CFT) initiatives. Project ET8, Personnel Airdrop System Development, improves Low Altitude and High Altitude personnel parachutes and associated equipment to include canopy improvement based on integration of new technology with the goal of enhancing the insertion capability and safety of the airborne Soldier and increasing the performance, reliability, and durability of personnel airdrop equipment. This project will transition capabilities from our Science and Technology partners to increase performance and safety of Soldier clothing and equipment. It will continue to support cross-service initiatives to improve commonality.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Personnel Airdrop System Development ***Description:*** Improve Low Altitude and High Altitude personnel parachutes and associated equipment to include canopy improvements based on integration of new technology with the goal of enhancing the insertion and safety of the airborne soldier and increasing the performance, reliability, and durability of personnel airdrop equipment. ***FY 2022 Plans:*** Continue evaluation of Low Altitude Static Line Reserve Parachute Automatic Activation Devices. Begin development and evaluation of Smart Universal Static Line Snap Hook (SUSH). ***FY 2023 Plans:*** Continue evaluation of Low Altitude Static Line Reserve Parachute Automatic Activation Devices. Mature form factor and operational concepts in addition to initial integration testing with the T-11 Reserve Single Pin. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase is due to an increased scope of testing.	1.219	1.113	1.853
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638. ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	-	0.042	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** ET8 / *Personnel Airdrop System Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding transferred in accordance with Title 15 USC 638.			
Accomplishments/Planned Programs Subtotals	1.219	1.155	1.853

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• ES9: *Advanced Tactical Parachute System*	3.027	1.770	3.029	-	3.029	2.835	3.806	4.148	4.189	0.000	22.804
• MA7801: *Advanced Tactical Parachute System*	54.747	34.959	42.444	-	42.444	40.046	36.722	33.791	33.774	0.000	276.483

Remarks

D. Acquisition Strategy

Programs pursue technology maturation and prototype development, culminating in the transition of mature technologies (Technology Readiness Level (TRL) 6-7) to system development and demonstration (SDD).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) ET8 / *Personnel Airdrop System Development*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.042		-		-		-	0.000	0.042	-
		Subtotal	-	-		0.042		-		-		-	0.000	0.042	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Contracts	C/FFP	TBD : TBD	0.255	0.700		0.355		0.650		-		0.650	2.588	4.548	-
Engineering Support	MIPR	CCDC Natick, MA : various	0.556	0.020		0.020		0.240		-		0.240	0.827	1.663	-
		Subtotal	0.811	0.720		0.375		0.890		-		0.890	3.415	6.211	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Allot	PM SCIE : Belvoir	0.375	0.370		0.424		0.188		-		0.188	0.811	2.168	-
		Subtotal	0.375	0.370		0.424		0.188		-		0.188	0.811	2.168	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	TBD : TBD	0.635	0.129		0.314		0.775		-		0.775	0.782	2.635	-
		Subtotal	0.635	0.129		0.314		0.775		-		0.775	0.782	2.635	N/A

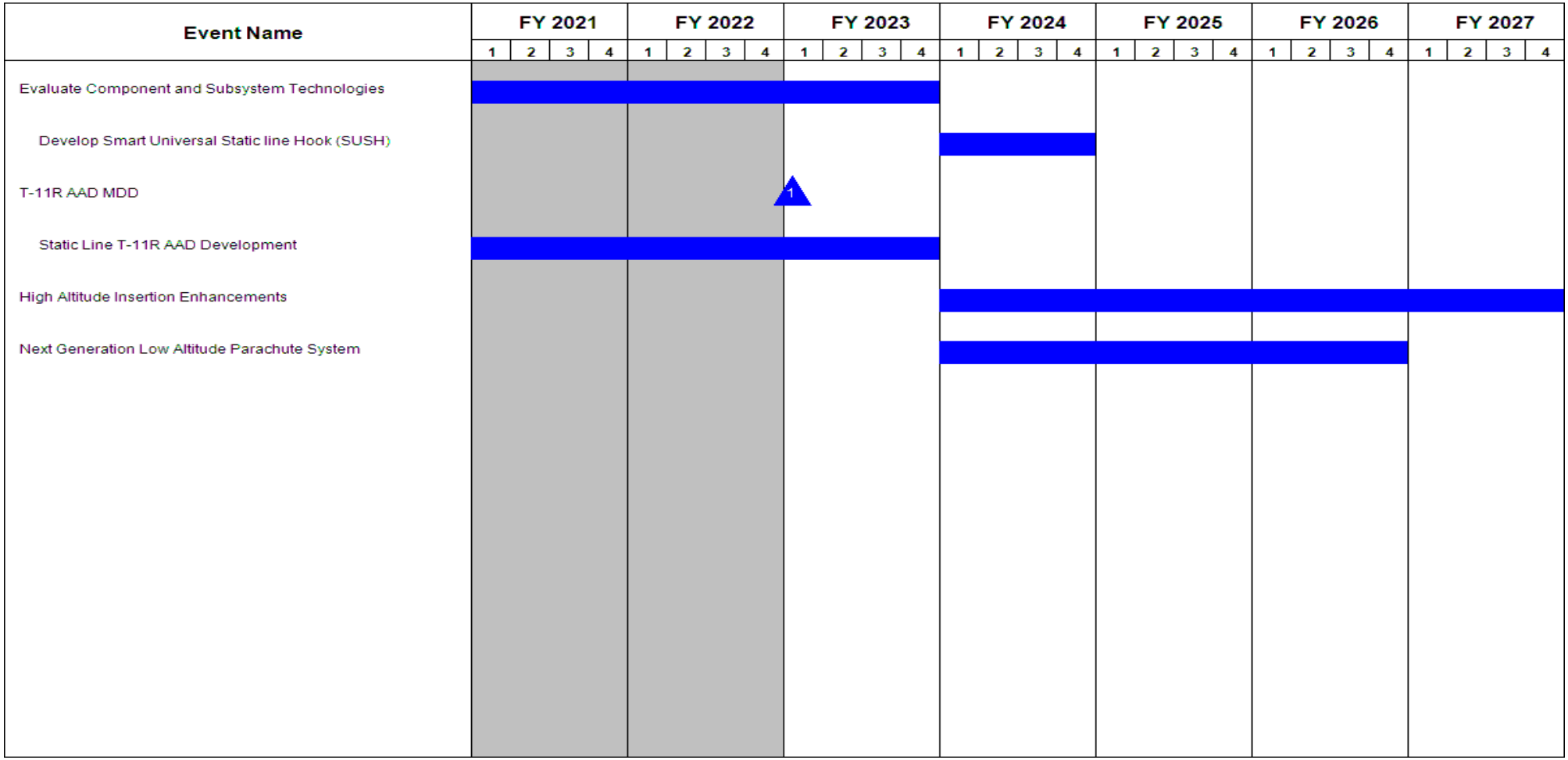
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.821	1.219		1.155		1.853		-		1.853	5.008	11.056	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) ET8 / *Personnel Airdrop System Development*	

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** ET8 / *Personnel Airdrop System Development*



Note

High Altitude Insertion Enhancements includes the following: Glide Technology, Situational Awareness Aids, and GPS Denied Navigation Aid.

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** ET8 / *Personnel Airdrop System Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Evaluate Component and Subsystem Technologies	1	2019	4	2023
Develop Smart Universal Static line Hook (SUSH)	1	2024	4	2024
T-11R AAD MDD	1	2023	1	2023
Static Line T-11R AAD Development	3	2020	4	2023
High Altitude Insertion Enhancements	1	2024	4	2027
Next Generation Low Altitude Parachute System	1	2024	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) S53 / *Clothing And Equipment*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
S53: *Clothing And Equipment*	-	1.742	6.504	4.578	-	4.578	4.799	8.312	8.957	9.044	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this effort supports the Army's Cross Functional Teams (CFT) initiatives to evaluate and integrate technologies and prototypes that expedite Product Manager Soldier Clothing and Individual Equipment (PM SCIE) technology transitions from the laboratory to operational use. Efforts focus on achieving commonality across a broad spectrum of warfighters to provide footwear, uniforms and clothing systems consisting of all layers required to accommodate Warfighters in all environments resulting in Soldier as an integrated system. PM SCIE efforts include female Warfighter specific items and sizing. This effort funds the transition of new, improved technologies and domestically available fabrics with capabilities such as Flame Resistance (FR), moisture wicking, vector protection and innovative multi-service efforts to advance camouflage technologies to mitigate Near Infrared (NIR), Short Wave Infrared (SWIR), Mid-Wave Infrared (MWIR), and Ultraviolet (UV) detection. This effort also funds integration of fabrics for uniforms and equipment for use in all environments focusing on arctic and jungle. PM SCIE will transition capabilities from our Science and Technology partners to increase performance of Warfighter clothing and equipment and identify emerging technologies to integrate smart textile capabilities into combat uniforms and equipment. Additional advances on existing technologies to improve survivability by focusing on reducing weight and improving performance, mobility and comfort. PM SCIE will continue to support multi-service commonality initiatives through technology that enables combat operations in a gender integrated fighting force.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Soldier Uniforms and Clothing	0.765	1.543	3.250
Description: Develop superior and sustainable integrated clothing and footwear for the Soldier in a rapidly changing global environment.			
FY 2022 Plans: Funding supports the Secretary of the Army's directive to identify opportunities for commonality in Organizational Clothing and Individual Equipment (OCIE) across all Services (Army, Navy, Air Force, Marines, Coast Guard). Evaluate transitioned fabric and system designs that provide specific protection, enhanced camouflage and identification capability and improved comfort for inclusion in tactical and environmental clothing. Transition materials for incorporation into combat uniforms to enhance Identification Friend or Foe (IFF). Transition functional textiles to mitigate Ground Surveillance Radar (GSR) detection by opposing forces. Transition materials that will improve cooling/airflow for dismounted Soldiers and reduce thermal signature to further mitigate detection. Investigate and evaluate conductive textiles (fabric level). Transition materials that will protect against emerging microwave threats. Continue uniform, clothing, and footwear improvements with an emphasis on commonality. Analyze Flame Resistant garment upgrades and review/improve testing protocols. Continue to develop novel solutions for parachutist clothing above 25,000 feet. Develop enhanced Organizational Clothing and Individual Equipment capabilities for			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S53 / *Clothing And Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Soldiers operating all climatic zones and environments. Continue testing novel materials and processes to improve clothing and equipment for all climates. Improve size standardization for all individually sized items. ***FY 2023 Plans:*** Supporting the Secretary of the Army's directive to identify opportunities for commonality in OCIE across all Services (Army, Navy, Air Force, Marines, and Coast Guard). Evaluate fabric and system designs that provide improved vector protection, enhanced camouflage and identification capability, Flame Resistant (FR) protection and improved comfort for inclusion in tactical and environmental clothing. Focus on improvements for cold weather and extreme cold weather clothing and handwear. Transition government developed materials that meet SWIR requirement and reduces costs across all Services. Develop enhanced Aircrew uniforms utilizing enhanced, domestically available FR fabrics. Investigate and evaluate conductive textiles (fabric level). Supports The Chief of Staff Army's directives resulting from the Army Uniform Board held twice annually to include upgrades to clothing bag items. Transition materials to reduce spectral as well as thermal signature to further mitigate detection. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase from FY 2022 to FY 2023 due to anticipated transitions from the Science and Technology community to include spectral mitigation and signature management. Increase will be focused on multiservice commonality efforts.			
Title: Individual Equipment ***Description:*** Develop and provide superior and sustainable integrated individual equipment for the Soldier in a rapidly changing global environment. ***FY 2022 Plans:*** Funding supports the Secretary of the Army's directive to identify opportunities for commonality in SCIE across all Services (Army, Navy, Air Force, Marines, Coast Guard). Evaluate new technology for the desalinization of salt water as part of the Individual Water Treatment Device program. Evaluate new technology to effectively camouflage and reduce thermal signature on exposed skin (face, neck, hands, etc) and technology to temporarily camouflage individual equipment. Evaluate materials and perform laboratory testing to support down-selection in support of Cold Weather Gear and Cold Weather Survival Blanket programs. Analyze current load carriage equipment to determine its ability to support the modernization of current individual weapons and situational awareness capabilities. Continue to optimize the capability of Load Carriage items to support modernization for weapons and tactical gear. Develop individual over the snow mobility and protection equipment. ***FY 2023 Plans:*** Supporting the Secretary of the Army's directive to identify opportunities for commonality in OCIE across all Services (Army, Navy, Air Force, Marines, and Coast Guard). Perform laboratory testing on novel materials to support Cold Weather Equipment programs. Evaluate current load carriage equipment to assess its ability to support the modernization of current individual weapons and situational awareness capabilities. Continue to optimize the capability of Load Carriage items to support	0.977	0.388	1.328

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S53 / *Clothing And Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
modernization of weapons and tactical equipment. Evaluate new technology to effectively camouflage and reduce thermal signature on exposed skin (face, neck, hands, etc.) and enhance individual equipment camouflage. Investigate new technology for the desalinization of salt water as part of the Individual Water Treatment Device program. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase from FY 2022 to FY 2023 due to anticipated transitions from the Science and Technology community to include spectral mitigation and signature management. Increase will be focused on multiservice commonality efforts.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.073	-
Accomplishments/Planned Programs Subtotals	1.742	2.004	4.578

	FY 2021	FY 2022
Congressional Add: Congressional Add for Multi-spectral Signature Management	-	4.500
FY 2022 Plans: Mature, incorporate and demonstrate infrared sensor detection mitigation technology into combat uniforms, body armor and operational clothing & individual equipment by conducting field tests of subsystem and system prototypes in relevant environments.		
Congressional Adds Subtotals	-	4.500

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• S60: *Clothing & Equipment*	6.472	5.393	6.313	-	6.313	3.499	6.490	9.048	9.136	0.000	46.351

Remarks

D. Acquisition Strategy

Programs pursue technology maturation and prototype development, culminating in the transition of mature technologies (Technology Readiness Level (TRL) 6-7) to Systems Development and Demonstration. This Project continues to exercise competitively awarded contracts using best value source selection procedures.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) S53 / *Clothing And Equipment*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	TBD	PM SCIE : Ft. Belvoir, VA	16.076	0.287		0.836		0.445		-		0.445	Continuing	Continuing	Continuing
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.073		-		-		-	0.000	0.073	-
		Subtotal	16.076	0.287		0.909		0.445		-		0.445	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	NSRDEC : Natick, MA	18.106	0.344		1.534		1.085		-		1.085	Continuing	Continuing	Continuing
Development Contracts	C/FFP	Various : Various	37.291	0.304		1.546		0.955		-		0.955	Continuing	Continuing	Continuing
		Subtotal	55.397	0.648		3.080		2.040		-		2.040	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program OfficeSupport Costs	MIPR	Natick,MA : Natick, MA	9.000	0.310		0.833		0.635		-		0.635	Continuing	Continuing	Continuing
		Subtotal	9.000	0.310		0.833		0.635		-		0.635	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing Costs	MIPR	Various : Various	29.195	0.497		1.682		1.458		-		1.458	Continuing	Continuing	Continuing
		Subtotal	29.195	0.497		1.682		1.458		-		1.458	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) S53 / *Clothing And Equipment*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	109.668	1.742		6.504		4.578		-		4.578	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S53 / *Clothing And Equipment*

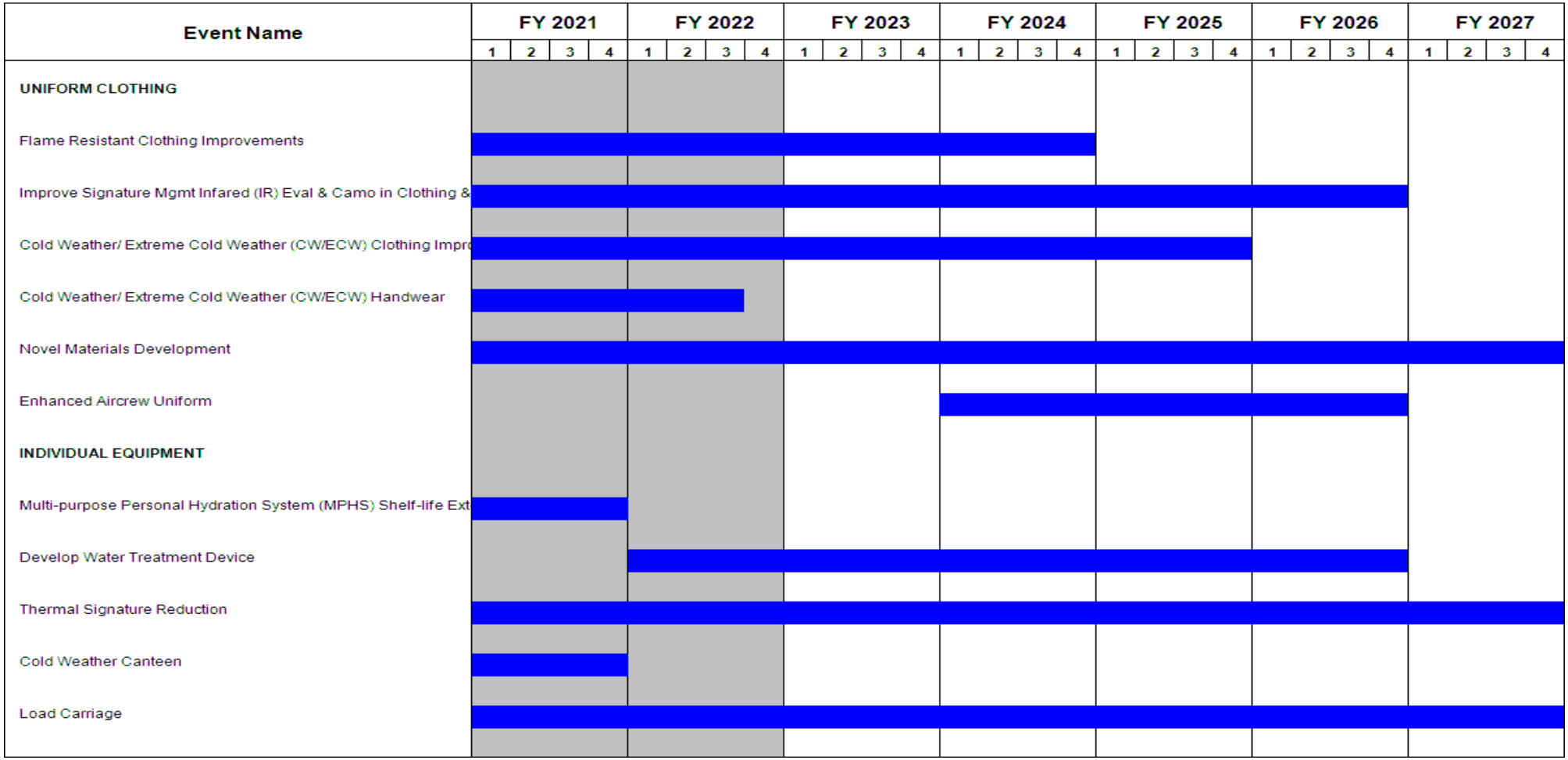


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S53 / *Clothing And Equipment*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UNIFORM CLOTHING	1	2010	4	2027
Flame Resistant Clothing Improvements	1	2012	4	2024
Improve Signature Mgmt Infared (IR) Eval & Camo in Clothing & Equipment	2	2012	4	2026
Cold Weather/ Extreme Cold Weather (CW/ECW) Clothing Improvements	1	2019	4	2025
Cold Weather/ Extreme Cold Weather (CW/ECW) Handwear	1	2020	3	2022
Novel Materials Development	1	2020	4	2027
Enhanced Aircrew Uniform	1	2024	4	2026
INDIVIDUAL EQUIPMENT	4	2015	4	2025
Multi-purpose Personal Hydration System (MPHS) Shelf-life Extension Evaluation	1	2019	4	2021
Develop Water Treatment Device	1	2022	4	2026
Thermal Signature Reduction	1	2021	4	2027
Cold Weather Canteen	1	2020	4	2021
Load Carriage	1	2020	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) S54 / *Small Arms Improvement*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
S54: *Small Arms Improvement*	-	16.216	10.911	9.248	-	9.248	9.286	9.366	9.359	9.448	0.000	73.834
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Arms Improvement Advanced Component Development and Prototypes (ACD&P) program provides funds to mature, demonstrate, test and evaluate emerging technology from Budget Activity (BA) 3 Program Element (PE) 0603607A Joint Service Small Arms Program (JSSAP) Project 627 Defense Advanced Research Projects Agency (DARPA), Department of Energy National Laboratories, Research Development & Engineering Centers (RDECs) and other domestic and foreign sources for small arms weapon systems and technology. Small Arms Improvement supports the Army Modernization priorities (Build a More Lethal Force) through enhancement of Joint Lethality in contested environments by minimizing and eliminating erosion of close combat capability relative to peer competitors in complex terrain as outlined in the National Defense Strategy (NDS). Small Arms weapon systems include weapons ranging up to 40 millimeter in caliber and recoilless rifles . Current and future efforts focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, usability, training effectiveness and reliability of weapons to include ammunition when developing and/or evaluating standard and non-standard weapons. Focus areas include the maturing of technology through testing and evaluation of sub-system or system prototypes which demonstrates light weight materials, wear resistant/protective/anti-reflective coatings, observation/situational awareness improvements, human-systems integration, robotic armament capability, non-lethal capability, and equipment enhancements. Benefits include continuous improvements to small arms weapon systems, fire control equipment, optics, gun barrels, training devices, suppressors, component mounts, weapon mounts, ancillary Items and weapon/ammunition interface. Includes costs associated with efforts for integration and interface of products on Soldiers' head, body and weapons.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: New Weapon Systems	3.311	0.336	1.000
Description: Development of new small arms weapon systems.			
FY 2022 Plans: Advanced Technologies for Machine Gun: Will conduct market research, evaluations, trade studies and assessments for new Medium Machine Gun technologies to address capability needs. These technologies may include, but are not limited to, novel recoil mitigation, alternative lightweight materials, barrel technologies, suppressor technologies, mounting and fire control interfaces. New and Legacy Weapon Systems Evaluation and Assessments: Will continue to perform initial and follow-on evaluations, assessments and integration of new weapons to include various new weapon system platforms.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Advanced Technologies for Machine Gun: Will conduct market research, evaluations, trade studies and assessments for new Medium Machine Gun technologies to address capability needs. These technologies may include, but are not limited to, novel recoil mitigation, alternative lightweight materials, barrel technologies, suppressor technologies, mounting and fire control interfaces. New Weapons and Enabling Technology Evaluation and Assessments: Will continue to perform initial and follow-on evaluations, assessments and integration of new weapons to include various new weapon system platforms. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** New Weapons: Increase from FY2022 to FY2023 for the Advanced Technologies for Machine Gun program.			
Title: Small Arms Weapon Systems Enhancements ***Description:*** Enhancements and development of small arms weapon systems. ***FY 2022 Plans:*** Small Business Innovative Research (SBIR) Enhancements: Will continue future efforts to focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons. Next Generation Weapons/Enhancements continue to support technology development for future Next Generation Weapon variants addressing operational force needs for increased lethality, increased probability of hit, increased soldier acceptance, decreased signature, reduced recoil, reduced soldier aim error, and reduced engagement time. New weapons may be variants or enhancements of the Next Generation Squad Weapon Rifle (NGSW-R) and Next Generation Squad Automatic Rifle (NGSAR) or new weapon platforms to fulfill other roles such as machine guns, sniper rifles, and others. Advanced Small Unit Technologies: Will continue to investigate and demonstrate advanced technologies to achieve capabilities identified as a capability gap for targets in defilade in the draft Tiered Capabilities Matrix (TCM) as well as potential use in future fire control and weapon modernization efforts. Enhanced System for Remote Weapon Stations & Kinetic Counter-UAS Weapons: Will evaluate the integration of an Inertial Navigation System (INS) to the CROWS to enhance the CROWS overall spatial environment awareness and improve accuracy in slewing to targets provided from external remote sources. i.e. off-board radar systems in support of network lethality operation. Also software development and integration to include BLADE CUAS kinetic defeat functionality into the CROWS Baseline software. Prototyping and testing of an enhanced CROWS slip ring to incorporate full 360 degree operation of BLADE CUAS kinetic defeat functionality on CROWS and provide ability to integrate other sensors and effectors onto the CROWS platform.	8.058	2.223	3.148

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Non-Standard Weapons Assessments: Will continue to conduct baseline testing of commercial weapon systems and perform capability analysis of unique weapon characteristics. Continue to utilize test information to conduct trade off assessments of Non-Developmental Item solutions for pending requirements as well as establish safety parameters for the training mission of Regionally Aligned Forces, Security Force Assistance Brigades, and other Department of Defense (DOD) customers. Will continue to establish a sustainment strategy for long term support of weapons procured to support the Regionally Aligned Forces and Security Force Assistance Brigade training missions. Will conduct safety assessments of limited distribution materiel systems considered for Table of Organization and Equipment (TOE) and Common Table of Allowances (CTA) approvals. Continue to conduct market research of commercially available weapon systems. Picatinny Smart Rail System Controller and Remote will continue to integrate different components together and then demonstrate its ability to control devices and manage data traffic. The completion of this effort will provide a path for future capability growth to systems such as, but not limited to Next Generation Squad Weapon Fire Control, Fire Control for M3E1, and Family of Weapon Sights ? Individual (FWS-I). This effort will be critical in ensuring we don?t have duplicative hardware on weapon systems as well as ensuring the devices on the weapons can properly communicate with each other. Power and Data Integration onto Open Architecture Accessory Rails will continue to integrate power and data capability in a negative space rail system. This will have potential applicability to systems such as, but not limited to Next Generation Squad Weapon-Rifle/Automatic Rifle, Precision Sniper Rifle, and Next Generation Medium/Heavy Machine Gun. Current and Legacy Weapon Improvements will continue to assess and evaluate selected capabilities and improvements for all current and legacy weapon systems. ***FY 2023 Plans:*** Small Business Innovative Research (SBIR) Enhancements will continue future efforts to focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons. Enhanced System for Remote Weapon Stations & Kinetic Counter-Unmanned Aerial System (UAS) Weapons will down select to a candidate Inertial Navigation System (INS) and integrate it to the Common Remotely Operated Weapon Station (CROWS) to demonstrate enhanced CROWS overall spatial environment awareness and improve accuracy in slewing to targets provided from external remote sources. i.e. off-board radar systems in support of network lethality operation. Continue software development and integration to include Counter Unmanned Aerial System (CUAS) kinetic defeat functionality into the CROWS Baseline Tech Refresh Software. Continue integration of prototype slip rings to the CROWS system. Engineering and environmental level testing of enhanced slip ring.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Smart Rail System Controller and Remote will continue to integrate different components together and then demonstrate its ability to control devices and manage data traffic. The completion of this effort will provide a path for future capability growth to systems such as, but not limited to Next Generation Squad Weapon Fire Control, Fire Control for M3E1 Multi-purpose Anti-armor Anti-personnel Weapon System (MAAWS), and Family of Weapon Sights ? Individual (FWS-I). This effort will be critical in ensuring we don?t have duplicative hardware on weapon systems as well as ensuring the devices on the weapons can properly communicate with each other. Power and Data Integration onto Open Architecture Accessory Rails will continue to integrate power and data capability in a negative space rail system. This will have potential applicability to systems such as, but not limited to Next Generation Squad Weapon-Rifle/Automatic Rifle, Precision Sniper Rifle, and Next Generation Medium/Heavy Machine Gun. Weapon Enhancements for Improved Ammunition will continue to enhancement weapons as ammunition is improved. New Weapons and Enabling Technology Evaluations and Assessments will continue to assess and evaluate selected capabilities and improvements for all current and legacy weapon systems. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase from FY2022 to FY2023 for Smart Rail System Controller and Remote, Power and Data Integration, and Weapon Enhancements.			
Title: Combat Optics ***Description:*** Improvement of small arms combat optics. ***FY 2022 Plans:*** Advanced Combat Optics (formerly called Next Generation Optics): Will continue to integrate current and emerging target acquisition component technologies such as, but not limited to rifle optics, binoculars and variable magnification spotting scopes. Will continue to evaluate state of the art advances in optical component technologies for inclusion in future combat optic products. ***FY 2023 Plans:*** Advanced Combat Optics will continue to integrate current and emerging target acquisition component technologies such as, but not limited to rifle optics, binoculars and variable magnification spotting scopes. Will continue to evaluate state of the art advances in optical component technologies for inclusion in future combat optic products.	0.100	0.050	0.050
Title: Fire Control	4.000	4.000	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Small arms fire control. ***FY 2022 Plans:*** Next Generation and Fire Control Technology Enhancements: Will continue to support technology integration with Next Generation Weapons addressing soldier aim error, engagement time, probability of hit, situational awareness, lethality, and soldier acceptance. Iterative prototyping will be utilized to develop component technologies to support future variants of the Next Generation Squad Weapon. Technology may include enhanced camera based technology, target tracking, automatic target detection, increased networked lethality, reduced signature, increased user acceptance, along with other emerging weapon, ammunition, and fire control technologies that will increase the lethality of the next generation squad weapons. Small Arms Fire Control Enhancements / Wind Sensing: Will continue research test and evaluation efforts on laser based wind sensors, proof-of-concept devices, and other optical designs for prototypes that incorporate fire control sensors and ballistic solver software and integration of sensor input and communication with ammunition for all small arms weapon platforms. The purpose of this effort is to evaluate downrange wind sensing technologies for incorporation into future fire control systems. Downrange wind sensing is the largest unmeasured variable remaining in ballistic calculation. ***FY 2023 Plans:*** Next Generation Weapons/Enhancements will continue to support technology development for future Next Generation Weapon variants addressing operational force needs for increased lethality, increased probability of hit, increased soldier acceptance, decreased signature, reduced recoil, reduced soldier aim error, and reduced engagement time. New weapons may be variants or enhancements of the Next Generation Squad Weapon Rifle (XM5) and Next Generation Squad Automatic Rifle (XM250) or new weapon platforms to fulfill other roles such as machine guns, sniper rifles, and others. Next Generation and Fire Control Technology Enhancements will continue to support technology integration with Next Generation Weapons addressing soldier aim error, engagement time, probability of hit, situational awareness, lethality, and soldier acceptance. Iterative prototyping will be utilized to develop component technologies to support future variants of the Next Generation Squad Weapon. Technology may include enhanced camera based technology, target tracking, automatic target detection, increased networked lethality, reduced signature, increased user acceptance, along with other emerging weapon, ammunition, and fire control technologies that will increase the lethality of the next generation squad weapons. Small Arms Fire Control Enhancements will continue research test and evaluation efforts on laser based wind sensors, proof-of-concept devices, and other optical designs for prototypes that incorporate fire control sensors and ballistic solver software and integration of sensor input and communication with ammunition for all small arms weapon platforms. The purpose of this effort is			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
to evaluate downrange wind sensing technologies for incorporation into future fire control systems. Downrange wind sensing is the largest unmeasured variable remaining in ballistic calculation. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase from FY2022 to FY2023 for the Small Arms Fire Control Enhancements.			
Title: Research and Analysis ***Description:*** Research and analysis of small arms. ***FY 2022 Plans:*** Plan to continue Market Research and Benefit Analysis of 360 degree situational awareness, active stabilization, advanced kinetic weapons, low flying drone engagement, and other small arms research to include new technologies in emerging robotic and aerial armaments. ***FY 2023 Plans:*** Will continue Market Research and Benefit Analysis of new weapons and enabling technology evaluations and assessments to include, but not limited to 360 degree situational awareness, active stabilization, advanced kinetic weapons, low flying drone engagement, and other small arms research to include new technologies in emerging robotic and aerial armaments.	0.747	0.050	0.050
Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***Description:*** Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***FY 2022 Plans:*** Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Tax ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Tax	-	0.252	-
Accomplishments/Planned Programs Subtotals	16.216	6.911	9.248

	FY 2021	FY 2022
Congressional Add: New Weapon Systems Congressional Add	-	4.000
FY 2022 Plans: Lightweight C-sUAS Force Protection System: Will develop extremely lightweight and reliable externally powered weapon for arming small Unmanned Aerial Systems (sUAS). Integrate externally powered		

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

	FY 2021	FY 2022
weapon into a small UAS, then perform engineering and operational testing. Demonstrate armed sUAS capability for destroying enemy sUAS and providing force protection.		
Congressional Adds Subtotals	-	4.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• EW4: *Crew Served Weapons Engineering Development*	9.608	8.943	4.958	-	4.958	4.391	3.847	4.152	4.191	0.000	40.090
• FF2: *Small Arms Fire Control*	9.782	7.008	8.179	-	8.179	10.263	5.065	5.066	5.116	0.000	50.479
• FM4: *Next Generation Squad Weapons*	32.001	13.599	15.816	-	15.816	16.482	11.278	11.282	11.393	0.000	111.851
• S63: *Individual Weapons Engineering Development*	3.493	3.651	3.956	-	3.956	3.624	3.579	3.863	3.899	0.000	26.065
• FL4: *Small Caliber Ammo for Next Gen Squad Weapons*	26.483	28.372	25.558	-	25.558	12.058	12.168	12.172	12.291	0.000	129.102
• E06002: *NEXT GENERATION COMBAT ROUND*	14.386	59.496	23.523	-	23.523	36.816	39.040	71.884	71.876	0.000	317.021

Remarks

In support of Small Arms Initial Capability and Capability Development Requirements, advanced technology of small arms weapon systems is transitioned from Joint Service Small Arms Program (JSSAP), Project 627, Program Element 0603607A, (Budget Activity 3) to Small Arms Improvement, Project S54, Program Element 0603827A, (Budget Activity 4). After the technology is demonstrated and/or validated, the program transitions to Infantry Support Weapons, Program Element 0604601A, (Budget Activity 5) for engineering and manufacturing development.

D. Acquisition Strategy

Primary strategy is to study, develop, demonstrate and evaluate emerging technologies that ultimately lead to modernizing, enhancing and/or improving the small arms inventory.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Allot	PM Soldier Lethality : Picatinny Arsenal	7.886	0.560	Mar 2021	0.280	Mar 2022	0.357	Mar 2023	-		0.357	Continuing	Continuing	Continuing
SBIR / STTR Transfer	FFRDC	Army Budget Office : Pentagon, Washington DC	0.282	-		0.252		-		-		-	Continuing	Continuing	Continuing
		Subtotal	8.168	0.560		0.532		0.357		-		0.357	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	MIPR	DEVCOM AC : Multiple	47.058	10.639	Mar 2021	8.061	Mar 2022	5.711	Mar 2023	-		5.711	Continuing	Continuing	Continuing
		Subtotal	47.058	10.639		8.061		5.711		-		5.711	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering	MIPR	DEVCOM AC : Multiple	30.213	2.240	Mar 2021	1.128	Mar 2022	1.663	Mar 2023	-		1.663	Continuing	Continuing	Continuing
		Subtotal	30.213	2.240		1.128		1.663		-		1.663	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Testing	MIPR	Army Test and Evaluation Centers, : Multiple	18.598	2.777	Mar 2021	1.190	Mar 2022	1.517	Mar 2023	-		1.517	Continuing	Continuing	Continuing
		Subtotal	18.598	2.777		1.190		1.517		-		1.517	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) S54 / *Small Arms Improvement*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	104.037	16.216		10.911		9.248		-		9.248	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

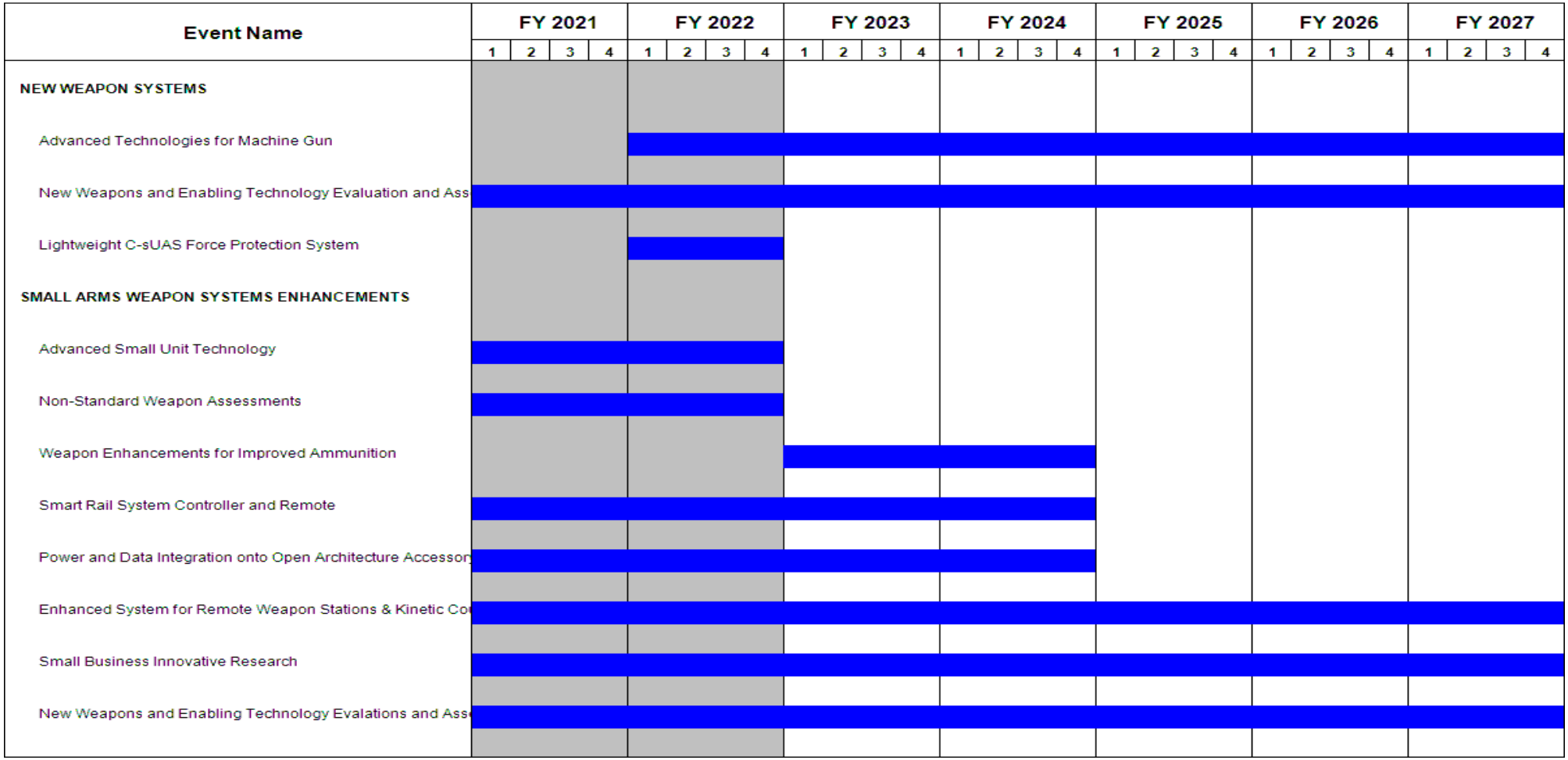


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

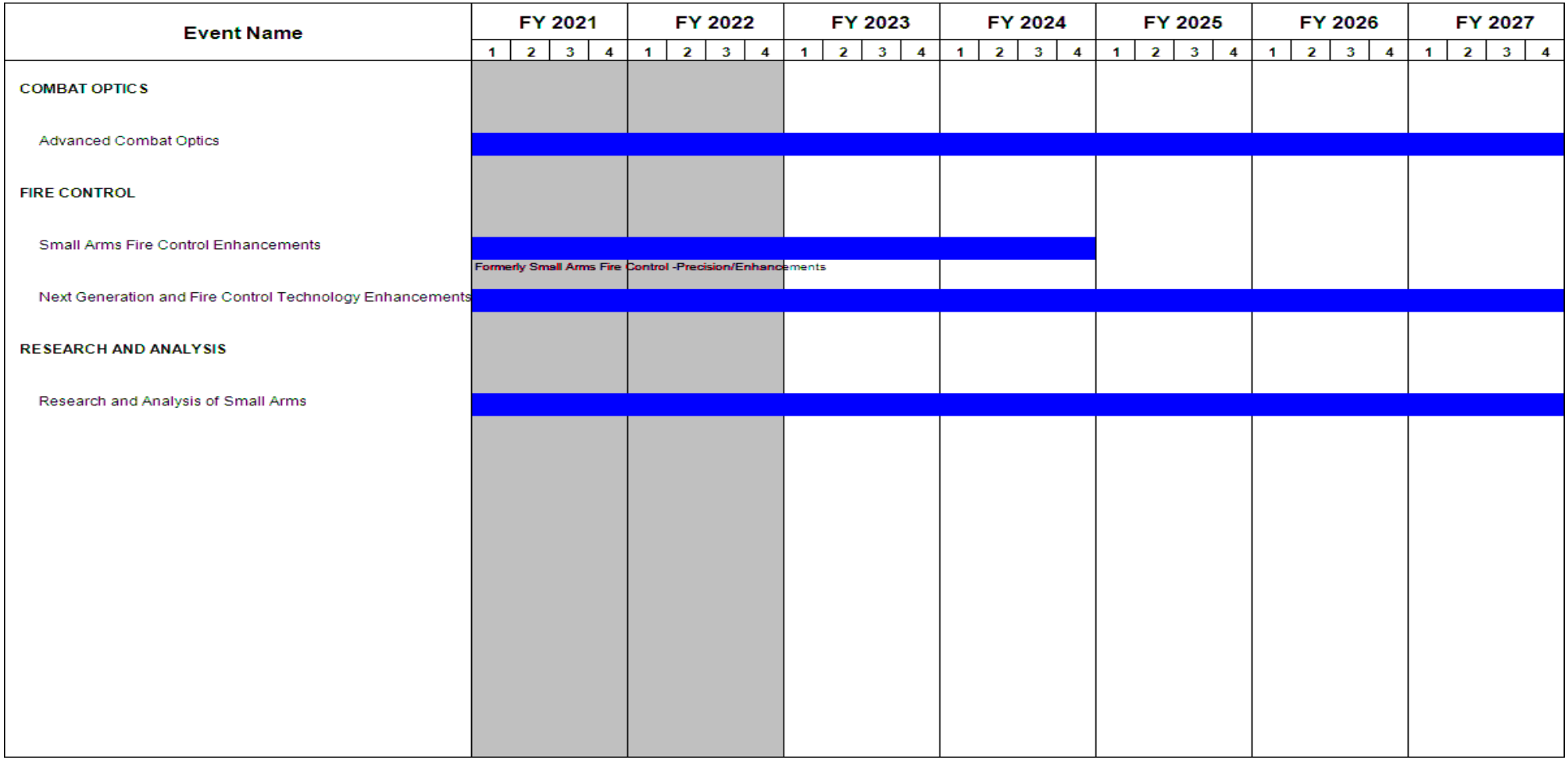


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** S54 / *Small Arms Improvement*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NEW WEAPON SYSTEMS	1	2008	4	2027
Advanced Technologies for Machine Gun	1	2022	4	2027
New Weapons and Enabling Technology Evaluation and Assessments	1	2020	4	2027
Lightweight C-sUAS Force Protection System	1	2022	4	2022
SMALL ARMS WEAPON SYSTEMS ENHANCEMENTS	1	2008	4	2027
Advanced Small Unit Technology	1	2021	4	2022
Non-Standard Weapon Assessments	1	2020	4	2022
Weapon Enhancements for Improved Ammunition	1	2023	4	2024
Smart Rail System Controller and Remote	1	2021	4	2024
Power and Data Integration onto Open Architecture Accessory Rails	1	2021	4	2024
Enhanced System for Remote Weapon Stations & Kinetic Counter-UAS Weapons	1	2020	4	2027
Small Business Innovative Research	1	2015	4	2027
New Weapons and Enabling Technology Evalations and Assessments	1	2020	4	2027
COMBAT OPTICS	1	2008	4	2027
Advanced Combat Optics	1	2020	4	2027
FIRE CONTROL	1	2008	4	2027
Small Arms Fire Control Enhancements	1	2017	4	2024
Next Generation and Fire Control Technology Enhancements	1	2019	4	2027
RESEARCH AND ANALYSIS	1	2012	4	2027
Research and Analysis of Small Arms	1	2015	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) VS4 / *Soldier Protective Equipment*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
VS4: *Soldier Protective Equipment*	-	2.279	4.278	6.434	-	6.434	8.160	8.147	8.146	8.222	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this project supports the Army's Cross Functional Teams' (CFT) initiatives. This Project supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Personal Protective Equipment (PPE) technology transition from the laboratory to operational use. This project will transition capabilities from our Science and Technology partners to increase performance and safety of Soldier clothing and protective equipment. Project supports the Secretary of the Army's directive to identify opportunities for commonality across all Services (Army, Navy, Air Force, Marines, and Coast Guard).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Soldier Protective Equipment (SPE)	2.279	4.122	6.434
Description: Effort to increase Warfighter survivability and mobility by optimizing Soldier protection while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).			
FY 2022 Plans: Project will continue Technology/Maturation and Risk Reduction efforts across the PPE portfolio: Torso and Extremity Protection (TEP); Vital Torso Protection (VTP); Integrated Head Protection System (IHPS); Next Generation (NG) IHPS, and Military Protective Eyewear Systems to support SPS requirements for lighter-weight ballistic materials with improved performance and manufacturing/ testing process improvements. When new materials are ready, the Product Management Office will evaluate upgrades and inform stakeholders of new operational capabilities and then incorporate them into SPS designs as appropriate. Continue efforts to characterize and increase durability, shelf life, and functional service life of existing personal protective systems at the subsystem/component level. Continue the development of improved measurement processes for existing systems and emerging requirements. Continue Head Protection efforts to pursue weight reduction through improved suspension systems and development of improved test and measurement devices supporting the Secretary of the Army's directive to identify opportunities for commonality across all Services (Army, Navy, Air Force, Marines, and Coast Guard). Product office will begin efforts to update gender geometric anatomy into models, such as Operational Requirements-based Casualty Assessment, to inform designs, sizing, and variations development and improvements to support Department of Defense (DoD) Soldier protection needs.			
FY 2023 Plans: With emerging innovations in materials and manufacturing, project will build on previously developed Technology/Maturation and Risk Reduction efforts across the PPE portfolio: Torso and Extremity Protection (TEP); Vital Torso Protection (VTP); Integrated Head Protection System (IHPS); Next Generation (NG) IHPS, and Military Protective Eyewear Systems to support SPS			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** VS4 / *Soldier Protective Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
requirements for lighter-weight ballistic materials with improved performance and manufacturing/ testing process improvements. Product Management Office will evaluate current and future material, processing upgrades, and inform stakeholders of new operational capabilities. These new future materials may come from S&T transitions, like Novel Fabric for Torso Protection. The Program will incorporate the new capabilities into SPS designs as appropriate. The Program will continue efforts to increase form, fit, and function of body armor for all Soldiers regardless of size and gender. The Program will also continue to develop conformal body armor and equipment to better accommodate female Soldiers. Maintain development initiatives to increase durability, shelf life, and functional service life of existing personal protective systems at the subsystem/component level. Continue the development of improved measurement, evaluation, and testing processes for existing systems and emerging requirements. Initiate Head Protection efforts to pursue Durable Anti-fog Coatings for Combat Eye Protection and Transparent Surfaces. Product office will begin efforts to update gender geometric anatomy into models, such as Operational Requirements-based Casualty Assessment, to inform designs, sizing, and variations development and improvements to support Department of Defense (DoD) Soldier protection needs. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding change in Soldier Protective Equipment portfolio is due to increased testing in eyewear and torso protection in FY 2022 and FY 2023 that result in an increase level of effort to address improved materials and emerging threats.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.156	-
Accomplishments/Planned Programs Subtotals	2.279	4.278	6.434

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• VS5: *Soldier Protective Equipment*	6.478	9.172	9.303	-	9.303	8.322	8.883	8.878	8.959	0.000	59.995

Remarks

D. Acquisition Strategy

Programs pursue technology transition from science and technology, maturation, and prototype development, culminating in the transition of mature technologies (Technology Readiness Levels (TRL) 6-7) to Engineering and Manufacturing Development. This Project continues to exercise competitively awarded contracts using best value source selection procedures where applicable.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) VS4 / *Soldier Protective Equipment*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Allot	PM SSV Various : Various	3.446	0.482		0.798		1.472		-		1.472	Continuing	Continuing	Continuing
SBIR/STTR	TBD	Various : Various	-	-		0.156		-		-		-	Continuing	Continuing	Continuing
		Subtotal	3.446	0.482		0.954		1.472		-		1.472	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev/Sys Engineering Spt	MIPR	CCDC-SC : Natick, MA	9.652	0.300		0.500		1.862		-		1.862	Continuing	Continuing	Continuing
Dev/Integ Contracts	TBD	CCDC-SC : Natick, MA	78.961	1.147		2.190		1.225		-		1.225	Continuing	Continuing	Continuing
		Subtotal	88.613	1.447		2.690		3.087		-		3.087	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Misc Support Costs	MIPR	Various : Various	5.421	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	5.421	-		-		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ballistic/Blast/Nonballistic Testing	MIPR	Various : Various	19.181	0.350		0.634		1.875		-		1.875	Continuing	Continuing	Continuing
		Subtotal	19.181	0.350		0.634		1.875		-		1.875	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / *Soldier Systems - Advanced Development*	Project (Number/Name) VS4 / *Soldier Protective Equipment*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	116.661	2.279		4.278		6.434		-		6.434	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** VS4 / *Soldier Protective Equipment*

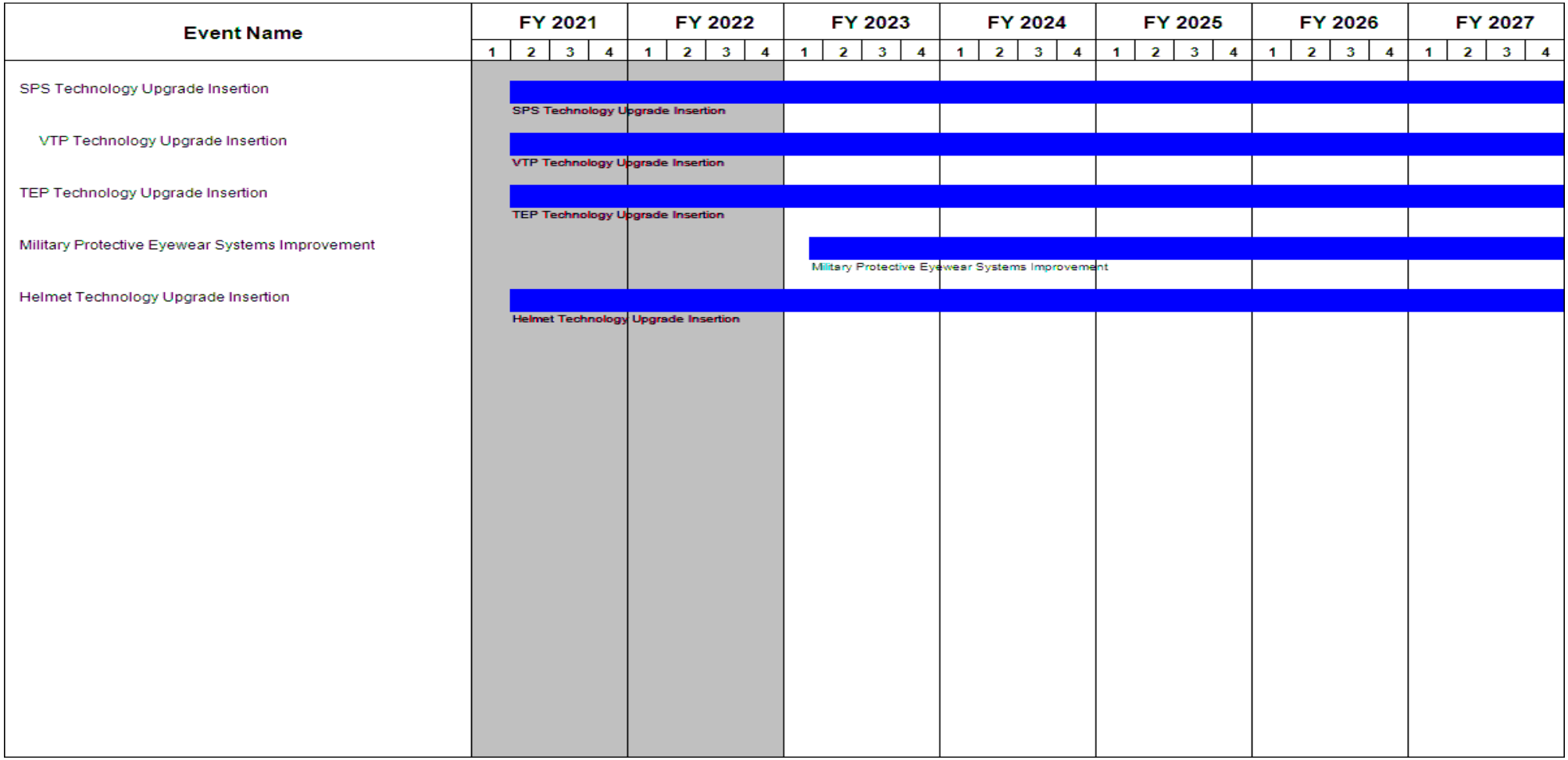


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603827A / *Soldier Systems - Advanced Development*	**Project (Number/Name)** VS4 / *Soldier Protective Equipment*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SPS Technology Upgrade Insertion	1	2018	4	2027
VTP Technology Upgrade Insertion	1	2021	4	2027
TEP Technology Upgrade Insertion	1	2021	4	2027
Military Protective Eyewear Systems Improvement	1	2023	4	2027
Helmet Technology Upgrade Insertion	1	2021	4	2027