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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	54.497	20.239	18.044	-	18.044	16.165	23.629	27.833	28.271	Continuing	Continuing
ET8: Personnel Airdrop System Development	-	0.664	0.495	0.396	-	0.396	0.297	1.267	1.265	1.813	Continuing	Continuing
S53: Clothing And Equipment	-	3.493	2.612	1.825	-	1.825	2.466	1.810	2.416	4.686	0.000	19.308
S54: Small Arms Improvement	-	11.649	6.851	7.687	-	7.687	10.566	16.108	19.243	15.284	0.000	87.388
VS4: Soldier Protective Equipment	-	38.691	10.281	8.136	-	8.136	2.836	4.444	4.909	6.488	0.000	75.785
A. Mission Description and Budget Item Justification												
This Program Element (PE) for Advanced Component Development and Prototypes manages the Soldier as a system in order to increase combat effectiveness, test and deliver tangible products that save Soldier's lives, and improve Soldier's quality of life. It evaluates, develops, and tests emerging technologies and critical Soldier support systems to reduce technology risk.												
Project ET8 funding (Personnel Airdrop System) supports efforts to improve Static Line (SL) and Military Free Fall (MFF) personnel parachutes and associated equipment to include canopy improvements based on integration of new technology with the goal of enhancing the insertion capability of the airborne soldier and increasing the performance, safety and durability of personnel airdrop equipment.												
Project S53 funding (Clothing and Equipment) supports development of state-of-the-art technology to improve tactical and non-tactical clothing and individual equipment to enhance the lethality, survivability, and mobility of the individual Soldier.												
Project S54 funding (Small Arms Improvement) provides funds to develop, demonstrate and evaluate emerging technology for integration of systems, subcomponents and prototypes designed to enhance lethality, target acquisition, fire control, training effectiveness and reliability for current and future small arms weapon systems and ammunition.												
Project VS4 funding (Soldier Protective Equipment) supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Individual Soldier Ballistic Protection technology transition from the laboratory to operational use.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army				Date: February 2018	
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			
B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	31.120	20.239	20.846	-	20.846
Current President's Budget	54.497	20.239	18.044	-	18.044
Total Adjustments	23.377	0.000	-2.802	-	-2.802
• Congressional General Reductions	-0.014	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	24.500	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.109	-			
• Adjustments to Budget Years	-	-	-2.802	-	-2.802
Change Summary Explanation					
The FY 2019 funding request was reduced by \$(2.491) million to account for the availability of prior year execution balances.					
FY 2017 increase: Delta attributable to congressional adds in the amounts of \$23M (Enhanced Lightweight body armor) and \$1.5M (Cannon life extension).					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
ET8: Personnel Airdrop System Development	-	0.664	0.495	0.396	-	0.396	0.297	1.267	1.265	1.813	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note Funding line established in FY17 for the Personnel Airdrop System Development. Efforts were previously executed in Program Element 0603827A S53.												
A. Mission Description and Budget Item Justification This funding supports efforts to improve Static Line (SL) and Military Free Fall (MFF) personnel parachutes and associated equipment to include canopy improvements based on integration of new technology with the goal of enhancing the insertion capability of the airborne Soldier and increasing the performance, safety and durability of personnel airdrop equipment. Includes integration and interface on the Soldier system.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2017	FY 2018	FY 2019	
Title: Personnel Airdrop System Development									0.664	0.495	0.396	
Description: Funding line is newly established in Fiscal Year (FY) 2017. Efforts were previously executed in Program Element 0603827A S53.												
FY 2018 Plans: Investigate and initiate T-11 improvements to address improved packability and weight reduction to include packing methods as agreed to during Army Airborne Board. Validate average oxygen consumption during high altitude / high opening assessment to verify future oxygen requirements prior to integration into the Parachutists Oxygen Delivery System (PODS). Procure PODS pre-breath prototype assets for evaluation.												
FY 2019 Plans: Continue to investigate and initiate T-11 improvements to address recommended T-11 changes in the static line parachute systems as agreed to during Army Airborne Board.												
FY 2018 to FY 2019 Increase/Decrease Statement: Funding decrease in Personnel Airdrop System Development portfolio is due to anticipated reduced requirements in FY18 and FY19.												
Accomplishments/Planned Programs Subtotals									0.664	0.495	0.396	

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018	
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			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• ES9: RDTE 0604601A ES9 Advanced Tactical Parachute System	2.858	5.840	7.200	-	7.200	6.694	1.851	3.000	3.000	0.000	30.443
• MA7801: OPA MA7801 Advanced Tactical Parachute System	16.611	28.440	41.610	-	41.610	48.819	60.280	54.264	45.000	0.000	295.024
• 0604601A: INFANTRY SUPPORT WEAPONS	63.842	-	83.155	-	83.155	82.105	96.663	76.241	64.575	0.000	466.581
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 Engineering and Manufacturing Development.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
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			
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Contracts	C/FFP	TBD : TBD	-	0.199		0.110		0.096		-		0.096	0.000	0.405	-
Engineering Support	MIPR	NSRDEC Natick, MA : various	-	0.090		0.100		0.100		-		0.100	0.000	0.290	-
Subtotal			-	0.289		0.210		0.196		-		0.196	0.000	0.695	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Allot	PM SCIE : Belvoir	-	0.175		0.175		0.100		-		0.100	0.000	0.450	-
Subtotal			-	0.175		0.175		0.100		-		0.100	0.000	0.450	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Bench top testing	MIPR	TBD : TBD	-	0.200		0.110		0.100		-		0.100	0.000	0.410	-
Subtotal			-	0.200		0.110		0.100		-		0.100	0.000	0.410	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.664		0.495		0.396		-		0.396	0.000	1.555	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army			Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>		Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</i>	

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Evaluate component and subsystem technologies																												
Parachutists Oxygen Delivery System (PODS) MDD																												
PODS Market Research																												
PODS MS B																												
SL Canopy Release Assembly Testing																												
Next Generation O2 Laboratory Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate component and subsystem technologies	1	2017	4	2020
Parachutists Oxygen Delivery System (PODS) MDD	1	2019	1	2019
PODS Market Research	2	2019	1	2020
PODS MS B	4	2019	4	2019
SL Canopy Release Assembly Testing	1	2023	4	2023
Next Generation O2 Laboratory Testing	1	2023	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
S53: Clothing And Equipment	-	3.493	2.612	1.825	-	1.825	2.466	1.810	2.416	4.686	0.000	19.308
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This funding supports efforts to evaluate and integrate technologies and representative or prototype systems that help expedite Soldier uniform and clothing 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 investigate new technologies and domestically available fabrics with Flame Resistant (FR), moisture wicking, insect protection and camouflage technologies, including evaluation and integration of fabrics appropriate for uniforms and equipment used in jungle/tropical and arctic environments. New technologies are investigated 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.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2017	FY 2018	FY 2019	
Title: Soldier Uniforms and Clothing									2.680	2.042	1.419	
Description: Develop and provide superior and sustainable integrated clothing for the Soldier in a rapidly changing global environment.												
FY 2018 Plans: Tactical Clothing. Conduct evaluation and integration of fabrics appropriate for uniforms and extremity protection used in arctic environment. Continue to evaluate and integrate technologies to support the development of accurate digital objective color assessment to provide pass/fail shade assessments for quality control and transition to Defense Logistics Agency Troop Support (DLA-TS). Evaluate improved lighter weight textiles which incorporate improved vector protection, Flame Resistant (FR) protection, and environmental protection while providing comfort, utility, and functionality. Evaluate next to skin uniform items using new no melt/no drip test methodology transitioning from Science and Technology (S&T) community. Continue evaluation of new technologies to mitigate spectral reflectance Short Wave Infrared (SWIR) for combat uniforms. Conduct evaluation and integration of insulated fabrics and technologies appropriate for handwear and footwear worn in extreme cold weather environments to be incorporated into hand and footwear systems transitioning from S&T community. Evaluate applicability of Flame/Heat Resistant thread technology transitioned from S&T for applicability in all FR uniforms.												
FY 2019 Plans: Will develop optimal jungle uniform materials and design technology transitioning from the Science and Technology (S&T) community to Product Manager Soldier Clothing and Individual Equipment (PdM SCIE) for use in jungle uniforms. Evaluate improved lighter weight textiles which incorporate improved vector protection, FR protection, and environmental protection while												

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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) providing comfort, utility, and functionality. Evaluate materials to support extreme cold temperature protection for military free fall parachutists. FY 2018 to FY 2019 Increase/Decrease Statement: Funding decrease in Soldier Uniforms and Clothing portfolio is due to anticipated reduced requirements in Fiscal Year (FY) 2018 and FY19.							FY 2017	FY 2018	FY 2019		
Title: Individual Equipment Description: Develop and provide superior and sustainable integrated individual equipment for the Soldier in a rapidly changing global environment. FY 2018 Plans: Continue evaluation of new technologies to mitigate spectral reflectance of Short Wave Infrared (SWIR) of nylon used in load carriage. FY 2019 Plans: Will evaluate government designed Modular Handgun System Holster transitioning from S&T community. FY 2018 to FY 2019 Increase/Decrease Statement: Funding decrease in Individual Equipment portfolio is due to anticipated reduced requirements in FY18 and FY19.							0.813	0.570	0.406		
Accomplishments/Planned Programs Subtotals							3.493	2.612	1.825		
C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u> <u>Base</u>	<u>FY 2019</u> <u>OCO</u>	<u>FY 2019</u> <u>Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• S60: RDTE, 0604601A.S60, Clothing and Equipment	8.401	7.022	5.413	-	5.413	6.528	6.803	5.075	4.909	Continuing	Continuing
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 Engineering and Manufacturing Development. This project continues to exercise competitively awarded contracts using best value source selection procedures.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
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)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	TBD	PM SPIE : Ft. Belvoir, VA	15.088	0.199		0.208		0.200		-		0.200	Continuing	Continuing	Continuing
Subtotal			15.088	0.199		0.208		0.200		-		0.200	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	NSRDEC : Natick, MA	15.428	0.500		0.410		0.300		-		0.300	Continuing	Continuing	Continuing
Development Contracts	C/FFP	Various : Various	33.030	0.695		0.724		0.400		-		0.400	Continuing	Continuing	Continuing
Subtotal			48.458	1.195		1.134		0.700		-		0.700	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Misc Support Costs	MIPR	Various : Various	7.777	0.300		0.325		0.200		-		0.200	Continuing	Continuing	Continuing
Subtotal			7.777	0.300		0.325		0.200		-		0.200	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing Costs	MIPR	Various : Various	24.250	1.799		0.945		0.725		-		0.725	Continuing	Continuing	Continuing
Subtotal			24.250	1.799		0.945		0.725		-		0.725	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			95.573	3.493		2.612		1.825		-		1.825	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army							Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks									

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army			Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>		Project (Number/Name) S53 / <i>Clothing And Equipment</i>	

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UNIFORM CLOTHING																												
Next Gen Insect repellent Testing																												
Flame Resistant Clothing Upgrades																												
Improve Signature Mgmt (IR) Eval & Camo in Clothing & Equipment																												
INDIVIDUAL EQUIPMENT																												
TIC/TIM Water Purification Testing																												
Fabric SWIR																												
Water Treatment/Desalinization																												
CW/ECW Clothing Improvements																												
CW/ECW Handwear																												
CW/ECW Footwear																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UNIFORM CLOTHING	1	2008	4	2023
Next Gen Insect repellent Testing	1	2020	4	2020
Flame Resistant Clothing Upgrades	1	2009	4	2023
Improve Signature Mgmt (IR) Eval & Camo in Clothing & Equipment	2	2012	4	2018
INDIVIDUAL EQUIPMENT	1	2009	4	2018
TIC/TIM Water Purification Testing	3	2020	3	2021
Fabric SWIR	4	2015	4	2019
Water Treatment/Desalinization	1	2023	4	2023
CW/ECW Clothing Improvements	1	2021	4	2021
CW/ECW Handwear	1	2018	4	2018
CW/ECW Footwear	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
S54: Small Arms Improvement	-	11.649	6.851	7.687	-	7.687	10.566	16.108	19.243	15.284	0.000	87.388
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The FY 2019 funding request was reduced by \$(2.491) million to account for the availability of prior year execution balances.
FY 2019 New starts include Next Generation Fire Control (Crew and Served).

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 Joint Service Small Arms Program (JSSAP), Project 627, Program Element 0603607A, (Budget Activity 3), 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 weapons systems and technology. Small arms 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 weapons, 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.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2017	FY 2018	FY 2019
Title: New Weapons	1.524	0.100	1.000
Description: Development of new small arms weapons			
FY 2018 Plans:			
Next Generation Squad Automatic Rifle: Continues to support the finalization of the Capability Development Document and Acquisition Strategy/Plan and schedule to support the Engineering and Manufacturing Development phase for the Next Generation Squad Automatic Rifle and determine details for technologies that will be pursued to meet the Soldier requirements.			
Externally Powered Mounted Machine Gun: Continues to support the development of the Capability Development Document with Maneuver Center of Excellence using data received from initial engineering design and prototype testing of functional objectives including increased lethality, expansion of mission roles and operational utility (using a single weapon) through enhanced precision and multiple firing modes.			

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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 2017	FY 2018	FY 2019
New Weapons Evaluations and Assessments: Performs initial evaluation and assessment of new weapons.					
FY 2019 Plans: Next Generation Squad Automatic Rifle (NGSAR): Transition of technologies from Program Element 0603827A S54 to Program Element 0604601A EW4: Will work to coordinate and develop the Capability Development Document (CDD), Acquisition Strategy, Capability Production Document (CPD), and provide data from various technologies to better inform stakeholders. Will begin EMD phase for the Next Generation Squad Automatic Rifle. Externally Powered Mounted Machine Gun renamed to Externally Powered Weapon (EPW): Will continue to support the development of the Capability Development Document (CDD) with Maneuver Center of Excellence and Maneuver Support Center of Excellence. Intend to leverage information gathered from prototype testing and develop a demonstrator to better evaluate and inform the CDD and the various platforms that may include the EPW as their Armament System. New Weapons Evaluations and Assessments: Will continue to perform initial evaluation and assessment of new weapons.					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increase					
Title: Small Arms Weapons Enhancements Description: Enhancements and developments of small arms weapons FY 2018 Plans: Recoil Reduction Mechanisms: Assesses and evaluates selected Recoil Reduction Mechanisms prototypes will be fabricated and tested for both individual and crew served weapons. Armaments for Robots: Begins to initiate the intelligence/networking and weapons design and functions for a man-in-the-loop, small caliber defensive armaments system on an unmanned ground vehicle including the Warfighter/Robot interface. Individual Non-Lethal System: Continues to monitor status of Capability Development Document and provide input into programmatic documents as necessary. Increased Barrel Life/Replace Chrome: Conducts test and evaluation of prototype barrels delivered in FY 2017. Pursues barrel and liner designs that can withstand higher pressures per the Small Arms Ammunition Configuration Study outputs. Further investigates and matures additive manufacturing and cold spray methodology for barrels.			2.496	0.100	0.100

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>Non-Standard Weapons Assessments: Continues to conduct baseline testing of commercial weapon systems and perform capability analysis of unique weapon characteristics. Continues 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 and establish a sustainment strategy for long term support of weapons procured to support the Regionally Aligned Forces training mission. Continues to conduct market research of commercially available weapon systems.</p> <p>Small Business Innovative Research Enhancements: Future efforts continues to focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons.</p> <p>Protective Weapons Coatings: (includes Adaptive Lubricious Coatings): Develops manufacturing technology to support production of super hydrophobic and other coatings in support of Small Arms Weapons. Assesses and evaluates current manufacturing process studies and assessments to adapt the coating technology into weapon Original Equipment Manufacturer manufacturing processes.</p> <p>Weapon Upgrades and Accessories: Tests, evaluates and analyzes ongoing and new activities to enhance small arms weapons.</p> <p>FY 2019 Plans:</p> <p>Recoil Reduction Mechanisms: Will continue to assess and evaluate selected Recoil Reduction Mechanisms prototypes will be fabricated and tested for both individual and crew served weapons.</p> <p>Armaments for Robots: Will continue to initiate the intelligence/networking and weapons design and functions for a man-in-the-loop, small caliber defensive armaments system on an unmanned ground vehicle including the Warfighter/Robot interface.</p> <p>Increased Barrel Life/Replace Chrome: Will continue test and evaluation of prototype barrels delivered in FY 2017. Pursues barrel and liner designs that can withstand higher pressures per the Small Arms Ammunition Configuration Study outputs. Further investigates and matures additive manufacturing and cold spray methodology for barrels.</p> <p>Non-Standard Weapons Assessments: Will continue to conduct baseline testing of commercial weapon systems and perform capability analysis of unique weapon characteristics. Continues 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 and establish a sustainment strategy for long term support of weapons procured to support the Regionally Aligned Forces training mission. Continues to conduct market research of commercially available weapon systems.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018		
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 2017	FY 2018	FY 2019
Small Business Innovative Research Enhancements: Future efforts will continue to focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons.				
Protective Weapons Coatings: (includes Adaptive Lubricious Coatings): Will continue to develop manufacturing technology to support production of super hydrophobic and other coatings in support of Small Arms Weapons. Will assess and evaluate current manufacturing process studies and assessments to adapt the coating technology into weapon Original Equipment Manufacturer manufacturing processes.				
Weapon Upgrades and Accessories: Will continue to test, evaluate and analyze ongoing and new activities to enhance small arms weapons.				
Title: Ammunition Description: Small arms ammunition improvement FY 2018 Plans: Ammunition Upgrades: Evaluates the effect of new ammunition on small arms weapons. FY 2019 Plans: Ammunition Upgrades: Will continue to evaluate the effect of new ammunition on small arms weapons.		0.855	0.100	0.100
Title: Combat Optics Description: Improvement of small arms combat optics FY 2018 Plans: Optics Upgrades: Evaluates state of the art advances in optical component technologies for inclusion in future products, including Mounted Machinegun Optic Capability Production Document, Fire Control Capability Development Document, and its associated annexes. FY 2019 Plans: Optics Upgrades: Will continue to evaluate state of the art advances in optical component technologies for inclusion in future products, including Mounted Machinegun Optic Capability Production Document, Fire Control Capability Development Document, and its associated annexes.		0.100	0.100	0.100
Title: Fire Control Description: Small arms fire control		6.574	6.351	6.287

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018	
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>FY 2018 Plans:</p> <p>Next Generation Spotting Scope: Consolidates readily available and mature fire-control/target acquisition component technologies into a variable magnification spotting scope.</p> <p>Next Generation Binocular: Assesses and evaluates incorporating existing target acquisition/fire control component technologies into binoculars.</p> <p>Sniper Missed Distance Corrective Offset: Assesses and evaluates from a sniper team (shooter's) location, tracks sniper's bullet trace to target to derive a missed distance correct offset for a follow-on shot.</p> <p>Small Arms Fire Control ? Crew Program of Record: Supports Crew Served Fire Control requirements tests and studies, Milestone B documentation generation, and transition to 0604601AFF2: Infantry Support Weapons.</p> <p>Small Arms Fire Control ? Squad Program of Record: Conducts prototyping activities to advance fire control technologies on carbine and rifle weapon platforms. Addresses Size, Weight, and Power trade space challenges associated with fire control on the individual squad weapons.</p> <p>Small Arms Fire Control ? Crew Enhancements: Continues support and oversight for exploring future fire control applications for Crew Served Weapons to include objective requirements of the Capability Development Document, Small Business Innovative Research, and digital enhancements.</p> <p>Small Arms Fire Control ? Precision Enhancements: Supports the following precision fire control enhancements: target detection to improve battlefield reconnaissance and intelligence gathering capabilities, improve target acquisitions at extended ranges in all battlefield conditions, target tracking, down range wind sensing technology, bullet tracking, weapon bore sensor, automated muzzle velocity tracker to improve fire control accuracy, far-target location, battlefield networking, and augmented reality. Provides support to Small Business Innovative Research efforts that will explore the feasibility, scientific merit, research and development, and commercialization of future Precision fire control system.</p> <p>Fire Control Upgrades: Initiates testing of advanced fire control systems for small arms platforms to define the acquisition strategy in support of the Capability Development Document consisting of individual weapons, sniper/precision, crew served weapons, low and high velocity 40mm.</p> <p>FY 2019 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>		Project (Number/Name) S54 / <i>Small Arms Improvement</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2017	FY 2018	FY 2019
FY 2019 New start: Next Generation Fire Control (Crew Served and Squad): Will support integration with Next Generation Squad Weapons, and specifically address aim augmentation, target tracking, secure wireless transmission, environmental sensing, and optical enhancements.					
Next Generation Spotting Scope: Will continue to consolidate readily available and mature fire-control/target acquisition component technologies into a variable magnification spotting scope.					
Next Generation Binocular: Will continue to assess and evaluate incorporating existing target acquisition/fire control component technologies into binoculars.					
Sniper Missed Distance Corrective Offset: Will continue to assess and evaluate from a sniper team (shooter's) location, tracks sniper's bullet trace to target to derive a missed distance correct offset for a follow-on shot.					
Small Arms Fire Control Squad Program of Record: Will continue to conduct prototyping activities to advance fire control technologies on carbine and rifle weapon platforms. Will address Size, Weight, and Power trade space challenges associated with fire control on the individual squad weapons. Will transition to Program Element 0604601A Project FF2 Small Arms Fire Control.					
Small Arms Fire Control Crew Enhancements: Will continue support and oversight for exploring future fire control applications for Crew Served Weapons to include objective requirements of the Capability Development Document, Small Business Innovative Research, and digital enhancements.					
Small Arms Fire Control Precision Enhancements: Will continue to support and explore future precision fire control enhancements which includes: target detection to improve battlefield reconnaissance and intelligence gathering capabilities, improve target acquisitions at extended ranges in all battlefield conditions, improve anti-reflection (AR) coating to minimize scope glints, and counter optical augmentation that can disclose soldiers' location, target tracking, down range wind sensing technology, bullet tracking, weapon bore sensor, automated muzzle velocity tracker to improve fire control accuracy, far-target location, battlefield networking, and augmented reality. To provide support to Small Business Innovative Research efforts that will explore the feasibility, scientific merit, research and development, and commercialization of future Precision fire control system.					
Fire Control Upgrades: Will continue testing of advanced fire control systems for small arms platforms to define the acquisition strategy in support of the Capability Development Document consisting of individual weapons, sniper/precision, crew served weapons, low and high velocity 40mm.					
FY 2018 to FY 2019 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019
Funding increase..												
Title: Research and Analysis										0.100	0.100	0.100
Description: Research and analysis of small arms												
FY 2018 Plans: Initiate Market Research and Benefit Analysis of 360 degree situational awareness, active stabilization, advanced kinetic weapons, low flying drone engagement, and other small arms research.												
FY 2019 Plans: Will continue to initiate Market Research and Benefit Analysis of 360 degree situational awareness, active stabilization, advanced kinetic weapons, low flying drone engagement, and other small arms research.												
Accomplishments/Planned Programs Subtotals										11.649	6.851	7.687
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost	
• S63: Individual Weapons Engineering Development	7.631	6.961	5.756	-	5.756	6.129	23.352	22.556	16.810	0.000	89.195	
• EW4: Crew Served Weapons Engineering Development	7.708	9.251	29.611	-	29.611	26.362	39.780	18.041	18.983	0.000	149.736	
• FF2: Small Arms Fire Control	-	20.117	20.201	-	20.201	21.463	10.163	11.254	4.967	0.000	88.165	
• FI2: Lightweight 30mm Cannon	-	5.500	0.000	-	0.000	1.384	-	-	-	0.000	6.884	
• 627: Jt Svc Sa Prog (JSSAP)	5.615	5.796	5.885	-	5.885	4.604	4.696	6.249	6.374	0.000	39.219	
Remarks												
In support of Small Arms Initial Capability and Capability Development Requirements, advanced technology of Small Arms Weapons 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 enhancing/improving the small arms inventory.												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / Soldier Systems - Advanced Development	Project (Number/Name) S54 / Small Arms Improvement
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
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)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Allot	PM Soldier Weapons, : Picatinny Arsenal	3.449	1.389	Mar 2017	0.566	Mar 2018	0.400	Mar 2019	-		0.400	Continuing	Continuing	Continuing
Subtotal			3.449	1.389		0.566		0.400		-		0.400	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	MIPR	Army Research Development Engineering Centers, : Multiple	10.375	1.000	Mar 2017	0.335	Mar 2018	1.009	Mar 2019	-		1.009	Continuing	Continuing	Continuing
Subtotal			10.375	1.000		0.335		1.009		-		1.009	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering	MIPR	Army Research Development Engineering Centers, : Multiple	19.615	5.165	Mar 2017	4.965	Mar 2018	3.778	Mar 2019	-		3.778	Continuing	Continuing	Continuing
Subtotal			19.615	5.165		4.965		3.778		-		3.778	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Testing	MIPR	Army Test and Evaluation Centers, : Multiple	9.766	4.095	Mar 2017	0.985	Mar 2018	2.500	Mar 2019	-		2.500	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>					Project (Number/Name) S54 / <i>Small Arms Improvement</i>				

Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			9.766	4.095		0.985		2.500		-		2.500	Continuing	Continuing	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.205	11.649	6.851	7.687	-	7.687	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army	Date: February 2018
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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NEW WEAPONS																												
Next Generation Squad Automatic Rifle																												
Externally Powered Weapon (EPW)																												
New Weapons Evaluations and Assessments																												
SMALL ARMS WEAPONS ENHANCEMENTS																												
Recoil Reduction Mechanisms																												
Armaments for Robots																												
Individual Non-Lethal System																												
Increased Barrel Life/Replace Chrome																												
Non-Standard Weapon Assessments																												
Small Business Innovative Research																												
Protective Weapons Coatings (includes Adaptive Lubricious Coatings)																												
Weapons Upgrades and Accessories																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army **Date:** February 2018

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AMMUNITION																												
Small Arms Ammunition Configuration Study																												
Ammunition Upgrades																												
COMBAT OPTICS																												
Optics Upgrades																												
FIRE CONTROL																												
Next Generation Fire Control (Crew Served and Squad)																												
Next Generation Spotting Scope																												
Sniper Missed Distance Corrective Offset																												
Small Arms Fire Control - Crew Program of Record																												
Small Arms Fire Control - Squad Program of Record																												
Small Arms Fire Control - Crew Enhancements																												
Small Arms Fire Control - Precision Enhancements																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army

Date: February 2018

Appropriation/Budget Activity

2040 / 4

R-1 Program Element (Number/Name)

PE 0603827A / Soldier Systems - Advanced Development

Project (Number/Name)

S54 / Small Arms Improvement

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NEW WEAPONS	1	2008	4	2023
Next Generation Squad Automatic Rifle	1	2014	4	2019
Externally Powered Weapon (EPW)	1	2015	4	2019
New Weapons Evaluations and Assessments	1	2017	4	2023
SMALL ARMS WEAPONS ENHANCEMENTS	1	2008	4	2023
Recoil Reduction Mechanisms	1	2018	4	2020
Armaments for Robots	1	2018	4	2020
Individual Non-Lethal System	1	2013	4	2018
Increased Barrel Life/Replace Chrome	1	2011	4	2019
Non-Standard Weapon Assessments	4	2011	4	2023
Small Business Innovative Research	1	2015	4	2023
Protective Weapons Coatings (includes Adaptive Lubricious Coatings)	1	2016	4	2023
Weapons Upgrades and Accessories	1	2010	4	2023
AMMUNITION	1	2008	4	2023
Small Arms Ammunition Configuration Study	4	2014	4	2017
Ammunition Upgrades	1	2016	4	2023
COMBAT OPTICS	1	2008	4	2023
Optics Upgrades	1	2016	4	2023
FIRE CONTROL	1	2008	4	2023
Next Generation Fire Control (Crew Served and Squad)	1	2019	4	2022
Next Generation Spotting Scope	1	2018	4	2019
Sniper Missed Distance Corrective Offset	1	2018	4	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018	
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603827A / Soldier Systems - Advanced Development		Project (Number/Name) S54 / Small Arms Improvement
		Start		End
Events	Quarter	Year	Quarter	Year
Small Arms Fire Control - Crew Program of Record	1	2017	4	2018
Small Arms Fire Control - Squad Program of Record	1	2017	4	2019
Small Arms Fire Control - Crew Enhancements	1	2017	4	2023
Small Arms Fire Control - Precision Enhancements	1	2017	4	2023
Small Arms Ballistic Kernel	1	2016	4	2017
Advanced Hyperspectral Target Acquisition	1	2014	4	2016
Small Arms Fire Control Upgrades	1	2008	4	2023
RESEARCH AND ANALYSIS	1	2012	4	2023
Research and Analysis of Small Arms	1	2015	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
VS4: Soldier Protective Equipment	-	38.691	10.281	8.136	-	8.136	2.836	4.444	4.909	6.488	0.000	75.785
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This funding in the amount of \$8.224 million supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Individual Soldier Ballistic Protection technology transition from the laboratory to operational use.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2017	FY 2018	FY 2019	
Title: Soldier Protective Equipment (SPE)									38.691	10.281	8.136	
Description: Effort is to increase the Warfighter lethality and mobility by optimizing Soldier protection while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).												
FY 2018 Plans: Initiate Technology/Maturation and Risk Reduction efforts across the Personal Protection Equipment (PPE) portfolio (extremities, torso and vital torso, head, eye and face protection) to support Soldier Protection System (SPS) requirements for lighter weight ballistic materials with improved performance and manufacturing/testing process improvements. If ready, initiate proof-of-principle demonstrations on promising new materials, technologies and or applique? in simulated and instrumented field exercises to evaluate SPS upgrades and inform stakeholders of new operational capabilities to enhance SPS. Continue efforts to characterize and increase durability and functional service life of existing personal protective systems at the subsystem/component level. Continue to develop the methodology for PPE shelf and service life, and to advance the novel modeling method for PPE performance. Continue the development of improved projectile yaw and velocity measurement for existing systems and emerging requirements including evaluation of subsystem technologies to counter Explosive Ordnance Disposal (EOD) threats.												
FY 2019 Plans: Will continue Technology/Maturation and Risk Reduction efforts across the PPE portfolio to support SPS requirements for lighter weight ballistic materials with improved performance and manufacturing/testing process improvements. If ready, initiate proof-of-principle demonstrations on promising new materials (such as Polyethylene film technology), and in simulated and instrumented field exercises, evaluate upgrades and inform stakeholders of new operational capabilities. 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 including evaluation of subsystem technologies to counter EOD threats.												
FY 2018 to FY 2019 Increase/Decrease Statement:												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019
Funding decrease in Soldier Protective Equipment portfolio is due to anticipated reduced requirements in FY18 and FY19. Also, FY17 received a \$23M Congressional plus up.												
Accomplishments/Planned Programs Subtotals										38.691	10.281	8.136
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost	
• VS5: RDTE, 0604601A.VS5, Soldier Protective Equipment	2.114	1.758	6.057	-	6.057	6.777	8.482	9.826	9.655	0.000	44.669	
Remarks												
D. Acquisition Strategy												
Programs pursue 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.												
E. Performance Metrics												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
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)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Allot	PM SPIE Various : Various	0.350	1.000		1.009		1.000		-		1.000	0.000	3.359	-
Subtotal			0.350	1.000		1.009		1.000		-		1.000	0.000	3.359	N/A
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev/Sys Engineering Spt	MIPR	Various : Various	5.352	2.707		0.727		0.764		-		0.764	Continuing	Continuing	-
Dev/Integ Contracts	TBD	Various : Various	13.966	19.397		5.861		3.612		-		3.612	Continuing	Continuing	Continuing
Subtotal			19.318	22.104		6.588		4.376		-		4.376	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Misc Support Costs	MIPR	Various : Various	1.900	2.025		0.200		0.200		-		0.200	Continuing	Continuing	Continuing
Subtotal			1.900	2.025		0.200		0.200		-		0.200	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ballistic/Blast/Nonballistic Testing	MIPR	Various : Various	3.228	13.562		2.484		2.560		-		2.560	Continuing	Continuing	Continuing
Subtotal			3.228	13.562		2.484		2.560		-		2.560	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			24.796	38.691		10.281		8.136		-		8.136	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army							Date: February 2018		
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>			Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>			
	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks									

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army			Date: February 2018		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>		Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>	

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SPS Technology Upgrade Insertion																												
VTP Technology Upgrade Insertion																												
TEP Technology Upgrade Insertion																												
Helmet Technology Upgrade Insertion																												
TCEP APEL Update																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SPS Technology Upgrade Insertion	1	2017	4	2023
VTP Technology Upgrade Insertion	1	2020	4	2023
TEP Technology Upgrade Insertion	1	2020	4	2023
Helmet Technology Upgrade Insertion	1	2020	4	2023
TCEP APEL Update	1	2018	1	2018