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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army											Date: February 2020	
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)					PE 0604601A / Infantry Support Weapons							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	74.629	87.179	91.574	-	91.574	61.328	56.704	56.848	55.308	Continuing	Continuing
CF3: <i>Integrated Soldier Systems (SL CFT)</i>	-	0.000	4.504	4.597	-	4.597	4.425	4.498	4.580	4.626	0.000	27.230
ES9: <i>Advanced Tactical Parachute System</i>	-	6.457	6.617	1.827	-	1.827	2.962	2.961	2.997	3.996	0.000	27.817
EW4: <i>Crew Served Weapons Engineering Development</i>	-	25.058	4.089	4.263	-	4.263	4.285	4.423	4.525	4.498	0.000	51.141
FF2: <i>Small Arms Fire Control</i>	-	4.094	14.700	10.153	-	10.153	11.244	7.993	9.991	9.992	0.000	68.167
FI2: <i>Lightweight 30mm Cannon</i>	-	0.000	1.384	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.384
FL8: <i>84mm MAAWS Ammunition</i>	-	0.000	4.040	3.131	-	3.131	2.997	0.000	0.000	0.000	0.000	10.168
FM4: <i>Next Generation Squad Weapons</i>	-	0.000	33.080	44.837	-	44.837	13.767	15.456	16.045	10.991	0.000	134.176
S58: <i>Soldier Enhancement Program</i>	-	8.989	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.989
S60: <i>Clothing &amp; Equipment</i>	-	8.152	6.453	6.717	-	6.717	5.010	4.846	3.697	6.814	0.000	41.689
S61: <i>Acis Engineering Development</i>	-	3.492	2.988	1.857	-	1.857	2.768	2.372	1.449	0.463	Continuing	Continuing
S62: <i>Counter-Defilade Target Engagement - SDD</i>	-	0.330	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.330
S63: <i>Individual Weapons Engineering Development</i>	-	12.454	2.697	4.374	-	4.374	4.214	4.280	4.270	4.216	0.000	36.505
S64: <i>Common Remotely Operated Wpn Sys (CROWS)</i>	-	0.000	0.000	1.499	-	1.499	0.000	0.000	0.000	0.000	0.000	1.499
S70: <i>Personnel Recovery Support System (PRSS)</i>	-	0.936	0.000	0.000	-	0.000	0.000	0.395	0.796	0.649	Continuing	Continuing
VS5: <i>Soldier Protective Equipment</i>	-	4.667	6.627	8.319	-	8.319	9.656	9.480	8.498	9.063	0.000	56.310

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<b>Note</b> Project FI2 Lightweight 30mm Cannon has no funding request for Fiscal Year (FY) 2021. This program 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).  Project S64 Common Remotely Operated Wpn Sys (CROWS) had a skip year of funding in FY 2019 and was last funded in FY 2018. This program 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 NDS.		
<b>A. Mission Description and Budget Item Justification</b> This Program Element (PE) Engineering and Manufacturing Development (EMD) manages the Soldier as a system, with the goal of increasing Soldiers' combat effectiveness, increasing survivability, and improving the Soldiers' quality of life. It develops and tests prototypes of weapons, clothing, equipment, and other items useful to support the Soldier.  Project CF3 (Integrated Soldier Systems (SL CFT)) supports the Adaptive Soldier Architecture (ASA) effort that will develop a full system architecture for the Soldier and the Squad. The focus will be full integration of all mission-specific equipment into the ASA as well as full configuration management of the Configuration Database, Architecture Assessment Tool and Squad Performance Model.  Project ES9 (Advanced Tactical Parachute System) supports efforts to improve personnel parachute systems and associated equipment for low and high altitude operations to include canopy improvements 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.  Project EW4 (Crew Served Weapons Engineering Development) supports efforts to transition components or prototypes from Small Arms Improvement, Project S54, Program Element 0603827A, (Budget Activity 4) and other domestic and foreign sources of small arms weapons to demonstrate, test and evaluate capability near or at planned operational requirements.  Project FF2 (Small Arms Fire Control) supports the development of an advanced fire control for the Next Generation Automatic Rifle (NGSW-AR) and Rifle (NGSW-R). The Next Generation Fire Control will increase the probability of hit and decrease the time to engage through a variable powered direct view optic with integrated range finder, ballistic calculator, and digital display capable of providing an adjusted aim point.  Project FI2 (Lightweight 30mm Cannon) provides increased lethality modification to Product Directorate Counter-Rocket Artillery Mortars (PD C-RAM) under a JUONS. An upgraded medium caliber weapon will be developed, tested and evaluated for integration into a modified remote weapon station under an Urgent Materiel Release (UMR).		

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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	
<p>Project FL8 (84mm MAAWS Ammunition) supports test, evaluation and quality up to seven types of 84 millimeter (mm) munitions for the U.S. Army use with the M3/M3A1 Multi-Role Anti-Personnel Weapon Systems (MAAWS).</p> <p>Project FM4 (Next Generation Squad Weapons) supports the rapid prototyping and development of a NGSW-AR, NGSW-R and common cartridge to provide capability improvements in accuracy, range and lethality, in order to maintain overmatch and meet future warfighter requirements.</p> <p>Project S58 (Soldier Enhancement Program) supports accelerated integration, modernization, and enhancement efforts of lighter, more lethal weapons, and improved Soldier items including lighter, more comfortable load-bearing equipment, field gear, survivability items, communications equipment, and navigational aids.</p> <p>Project S60 (Clothing &amp; Equipment) supports pre-production development of state-of-the-art individual clothing and equipment to improve the survivability, mobility and sustainment affecting the quality of life of the individual Soldier.</p> <p>Project S61 (Acis Engineering Development) provides System Development programs with improved aviator safety, survivability, and human performance that amplify the warfighting effectiveness and facilitates full-spectrum dominance of the Army aircraft including the AH-64 Apache/Longbow, CH-47 Chinook, UH/HH-60 Blackhawk, Light Utility Helicopter, and Armed Reconnaissance Helicopter.</p> <p>Project S62 (Counter-Defilade Target Engagement - SDD) the XM25, Individual Airburst Weapon System (IAWS) delivers a 25mm programmable high explosive airburst (HEAB) round to defeat defilade and point area targets out to approximately 600 meters. Accurate and lethal engagement of defilade targets at the squad level is the number one capability gap identified by the United States Army Infantry Center (USAIC).</p> <p>Project S63 (Individual Weapons Engineering Development) demonstrates engineering development models or integrated commercial items designed to enhance lethality, target acquisition, fire control, training effectiveness, and reliability for small arms weapon systems and ammunition. Programs include Improved Weapons Coatings, Personal Defense Weapon, 30 Round 5.56mm Magazine, Modular Handgun System (MHS), Precision Sniper Rifle (PSR), Sub Compact, and Interim Combat Service Rifle (ICR).</p> <p>Project S64 (Common Remotely Operated Wpn Sys (CROWS)) continues enhancing CROWS capability and reliability to increase its application across combat and tactical platforms. This capability enhances the Soldier's survivability, lethality and situational awareness.</p> <p>Project S70 (Personnel Recovery Support System (PRSS)) provides system research, development and testing of the Personal Recovery Support System/Personnel Recovery Support Equipment supporting operations to report and locate isolated, missing, detained or captured Soldiers.</p> <p>Project VS5 (Soldier Protective Equipment) supports engineering and manufacturing development of Individual Soldier Ballistic Protection equipment. It will leverage advancements in technology to continue incremental improvements to body armor (to include improved outer tactical vests, plate carriers, and helmets) and other personal protective equipment.</p>		

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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	63.793	106.121	107.166	-	107.166
Current President's Budget	74.629	87.179	91.574	-	91.574
Total Adjustments	10.836	-18.942	-15.592	-	-15.592
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-20.442			
• Congressional Rescissions	-	-			
• Congressional Adds	-	1.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	10.836	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-15.592	-	-15.592

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** EW4: *Crew Served Weapons Engineering Development*

Congressional Add: *FY 2019 Congressional Add: Cannon Life Extension-\$1.5 million & FY2019 ATR Next Generation Squad Weapons (NGSW-AR)- \$14.490 million*

Congressional Add Subtotals for Project: EW4

Congressional Add Totals for all Projects

	<b>FY 2019</b>	<b>FY 2020</b>
	14.490	1.500
	14.490	1.500
	14.490	1.500

**Change Summary Explanation**

FY 2021 decrease in funding due to reduced Ammo requirements and protective coatings testing.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> CF3 / <i>Integrated Soldier Systems (SL CFT)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
CF3: <i>Integrated Soldier Systems (SL CFT)</i>	-	0.000	4.504	4.597	-	4.597	4.425	4.498	4.580	4.626	0.000	27.230
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Adaptive Squad Architecture (ASA) and Squad Performance Model (SPM) are Program Executive Office Soldier (PEO S) led efforts which will allow optimization of the Soldier and the Squad. The focus of CF3 will be the full integration of all mission-specific equipment (CF2 incorporates Soldier base/common kit) into the ASA and SPM as well as full configuration management of the Configuration Database (CD), Architecture Assessment Tool (AAT) and SPM. This will be accomplished by continued development of Interface Control Documents (ICDs) in order to provide common established interfaces for external stakeholders who will interface on or with the Soldier platform. The ASA and SPM will continue to refine a metrics-based approach that will include live, virtual, and constructive tools across the DoD, academia, and industry which will be used for senior leaders to make deliberate decisions based on the analysis of Soldier/Squad Performance. 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)**

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Integrated Soldier Systems	-	4.299	4.597	-	4.597
<b>Description:</b> Test, maintain and evolve a Soldier/squad equipment configuration baseline and conduct configuration management at the system level. Physically integrate components, improve compatibility and interoperability across programs. Establish and maintain tools that provide Systems Engineering, Configuration Management and Evaluation in a virtual and physical environment. Conduct Squad Performance Model (SPM) evaluations and integrate mission-specific equipment into the Adaptive Squad Architecture (ASA) with continued emphasis on development of ICDs, evaluations, and improved fidelity of the SPM.					
<b>FY 2020 Plans:</b> Integrated mission-specific equipment with other combat platforms into initial version of ASA. Conducted evaluations in support of the SPM.					
<b>FY 2021 Base Plans:</b> Continue the integration of mission-specific equipment with other combat platforms into initial version of ASA. Continue evaluations in support of the SPM.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>					

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> CF3 / <i>Integrated Soldier Systems (SL CFT)</i>
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**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
FY 2020 to FY 2021 increase in required funding is due to the analysis of other mission specific equipment that seeks to reduce physical weight, cognitive burden, and sustainment needs of the Squad as an Integrated Combat Platform.					
<b>Title:</b> FY 2020 SBIR/STTR Transfer	-	0.205	-	-	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>Accomplishments/Planned Programs Subtotals</b>	-	4.504	4.597	-	4.597

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• CF2: <i>Integrated Soldier Systems Prototyping (SL CFT)</i>	-	1.959	2.541	-	2.541	3.149	3.771	3.843	3.881	0.000	19.144

**Remarks**

**D. Acquisition Strategy**

PEO Soldier will utilize available Adaptive Squad Architecture (ASA) and Squad Performance Model (SPM) tools, current Systems Engineering and Technical Assistance (SETA) contracts as well as tools/deliverables built under project CF2 to validate, verify and operationally test the ASA and SPM, in both physical and virtual environments. The PEO will utilize project CF3 to leverage any data, architectural products or designs from the Army's Heads-up Display (HUD) v3.0 (a separate project).

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> CF3 / <i>Integrated Soldier Systems (SL CFT)</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.205		-		-		-	0.000	0.205	-
<b>Subtotal</b>			-	-		0.205		-		-		-	0.000	0.205	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASA and SPM Engineering, Manufacturing, Development	MIPR	TBD : Various	-	-		2.402	Jan 2020	2.597	Jan 2021	-		2.597	0.000	4.999	-
<b>Subtotal</b>			-	-		2.402		2.597		-		2.597	0.000	4.999	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Physical evaluations to support ASA and SPM	MIPR	Various : To Be Determined	-	-		1.897	Jan 2020	2.000	Jan 2021	-		2.000	0.000	3.897	-
<b>Subtotal</b>			-	-		1.897		2.000		-		2.000	0.000	3.897	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		-	-	4.504	4.597	4.597	0.000	9.101	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> CF3 / <i>Integrated Soldier Systems (SL CFT)</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
ASA Integration																												
SPM Evaluations																												

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**Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> CF3 / <i>Integrated Soldier Systems (SL CFT)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ASA Integration	2	2020	4	2025
SPM Evaluations	2	2020	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> ES9 / <i>Advanced Tactical Parachute System</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
ES9: <i>Advanced Tactical Parachute System</i>	-	6.457	6.617	1.827	-	1.827	2.962	2.961	2.997	3.996	0.000	27.817
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. Advanced Tactical Parachute System funding supports efforts to improve Low Altitude and High Altitude personnel parachutes and associated equipment to include test and evaluation of items transitioning from Advanced Component Development and prototype (6.4) efforts, 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. Funds improvements and testing/evaluation of personnel parachute systems includes integration and interface on the Soldier system. This project will continue to support cross-service initiatives to improve commonality.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Advanced Tactical Parachute System	6.074	6.316	1.827	-	1.827
<b>Description:</b> Advanced Tactical Parachute System fund improvements and testing/evaluation of personnel parachute systems. Project supports effort to improve Low Altitude and High Altitude personnel parachute systems and associated equipment to include test and evaluation of items transitioning from Advance Component Development and prototype (6.4) efforts, 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.					
<b>FY 2020 Plans:</b> Complete OT for Enhanced Electronic Automatic Activation Device (EEAAD) in support of MS C decision and full materiel release. Complete Parachutist Oxygen Delivery System (PODS) DT and prepare to enter OT. Conduct DT for Military Altimeters. Continue to conduct testing for service life extension for RA-1, T-11, and MC-6 parachutes; glide modulation capability of the RA-1 parachute system; and automated parachute management tracking system development and integration for RA-1, T-11, and MC-6 parachute systems; and support modernization initiatives to parachute systems.					
<b>FY 2021 Base Plans:</b> Complete the rescheduled (from FY 2020) Operational Testing (OT) for the Enhanced Electronic Automatic Activation Device (EEAAD) in support of MS C decision and Full Material Release (FMR). Conduct Parachutist Emergency Release System (PERS) (formally called Towed Jumper Release Systems (TJRS)) Developmental Testing (DT). Continue to conduct testing for service life extension for T-11, and MC-6 parachutes, automated					

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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> ES9 / <i>Advanced Tactical Parachute System</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
parachute management tracking system integration for personnel parachute systems, Parachutist Navigation System software improvements, T-11 and RA-1 upgrades and support enhanced standoff parachute insertion capabilities.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decrease in Advanced Tactical Parachute portfolio is due to anticipated requirements changes in FY 2021.					
<b>Title:</b> FY 2019 Rescission <b>Description:</b> Rescission Infantry support weapons - S62 counter-defilade target engagement	0.383	-	-	-	-
<b>Title:</b> FY 2020 SBIR/STTR Transfer <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638  <b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638	-	0.301	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	6.457	6.617	1.827	-	1.827

<b>C. Other Program Funding Summary (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• MA7801: <i>Advanced Tactical Parachute System</i>	41.104	42.622	53.021	-	53.021	47.755	39.808	38.978	25.110	0.000	288.398
• ET8: <i>Personnel Airdrop System Development</i>	0.396	0.297	1.266	-	1.266	1.264	1.811	0.999	0.999	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**  
Acquisition strategies for these programs vary in methods, and range from: 1) Material Change programs that result in engineering changes to existing systems to; 2) Traditional development programs that include an Engineering and Manufacturing Development phase ranging in duration from 12 to 48 months, depending on the level of complexity and testing required.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604601A / Infantry Support Weapons				ES9 / Advanced Tactical Parachute System								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
FY 2019 Rescission	TBD	Various : Various	-	0.383		-		-		-		-	0.000	0.383	-	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.301		-		-		-	0.000	0.301	-	
<b>Subtotal</b>			-	0.383		0.301		-		-		-	0.000	0.684	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Contracts	C/FFP	Various : Various	5.574	2.997		3.242		0.559		-		0.559	6.335	18.707	Continuing	
Dev Sys Engineering Spt	MIPR	Various : Various	0.400	0.200		0.125		0.212		-		0.212	1.190	2.127	Continuing	
FY 2019 SBIR / STTR/ FFRDC Transfer	TBD	TBD : TBD	-	0.253		-		-		-		-	0.000	0.253	-	
<b>Subtotal</b>			5.974	3.450		3.367		0.771		-		0.771	7.525	21.087	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Office Support Costs	MIPR	NSRDEC : Natick, MA	0.531	0.435		0.324		0.283		-		0.283	0.491	2.064	Continuing	
<b>Subtotal</b>			0.531	0.435		0.324		0.283		-		0.283	0.491	2.064	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
DT/OT	MIPR	various : various	1.960	2.189		2.625		0.773		-		0.773	4.913	12.460	Continuing	
<b>Subtotal</b>			1.960	2.189		2.625		0.773		-		0.773	4.913	12.460	N/A	







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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> ES9 / <i>Advanced Tactical Parachute System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Enhanced Electronic Auto Activation Device (EEAAD) Dev	1	2019	4	2021
EEAAD Milestone C	1	2022	1	2022
RA-1 Improvements	1	2019	4	2022
T-11/MC-6 Service Life Enhancements	1	2019	4	2022
Parachutist Flotation Device (PFD) MDD	3	2019	3	2019
PFD Development	3	2019	3	2020
PFD Milestone C	3	2021	3	2021
Evaluate T-11 Pack Tray Modifications	1	2020	4	2020
Low Observable (Signature Reduction) Testing	1	2020	4	2022
PNS Software Improvements	1	2020	4	2025
Support Enhanced Standoff Parachute Insertion	3	2020	4	2024
Parachutist Emergency Release System (PERS) MDD	1	2021	1	2021
PERS Development	2	2021	4	2022
PERS Milestone C	1	2023	1	2023
Military Altimeters MDD	1	2021	1	2021
Military Altimeters Development	2	2021	4	2022
Military Altimeters Milestone C	1	2023	1	2023
Develop Static Line T-11 Reserve Automatic Activation Device (RAAD)	1	2022	2	2025
Static Line T-11RAAD Milestone C	3	2025	3	2025
High Altitude Insertion Enhancements	1	2023	4	2025
Develop and Test Smart Universal Static line Hook (SUSH)	1	2023	4	2023
Develop and Test T-11 Light Weight Canopy	1	2024	4	2025

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
2040 / 5	PE 0604601A / <i>Infantry Support Weapons</i>	ES9 / <i>Advanced Tactical Parachute System</i>

**Note**

Note: Towed Jumper Retrieval System (TJRS) is now Parachutist Emergency Release System (PERS).

High Altitude Insertion Enhancements includes the following programs: Glide Augmentation, Situational Awareness Aids, High Altitude Combo Drops and GPS Denied Navaid.

RA-1 Improvements included the following programs: Glide Modulation, C-17 Over the Ramp (OTR), Riser Improvement, Above 25K Operations and Reserve Deployment Bag.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
EW4: <i>Crew Served Weapons Engineering Development</i>	-	25.058	4.089	4.263	-	4.263	4.285	4.423	4.525	4.498	0.000	51.141
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Crew Served Weapons Engineering and Manufacturing Development (EMD) program provides funds to transition components or prototypes from Budget Activity 4 (BA 4) Program Element (PE) 0603827A Soldier Systems - Advanced Development Project S54 Small Arms Improvement and other domestic and foreign sources of small arms weapon systems to demonstrate, test and evaluate capability near or at planned operational requirements. Crew Served Weapons systems include weapons ranging up to 40 millimeter in caliber. Current and future efforts focus on system improvements designed to enhance lethality, target acquisition, 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 system development, integration (to include human-systems), demonstration, test and evaluate components, prototypes and operational system prototypes of small arms weapon systems and/or enhancements. Benefits include continuous improvements to small arms weapon systems, fire control equipment, optics, gun barrels, ancillary equipment, training devices, component mounts, weapon mounts, and weapon/ammunition interface of current small arms fleet or new weapon systems.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> New Weapon Systems	6.335	1.191	1.321	-	1.321
<b>Description:</b> Development of new crew served weapons					
<b>FY 2020 Plans:</b> Precision Sniper Rifle (PSR): Supported ammunition specific testing, development of a spare parts contract, Life Cycle sustainment planning efforts, and activities to support a Milestone C / Type Classification-Standard decision for PSR weapon system and two ammunition cartridges.					
New Weapon Systems Evaluations and Assessments: Continued to perform initial evaluation and assessment of new weapon systems.					
<b>FY 2021 Base Plans:</b> M3/M3E1 Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS): Plan to complete all operational and qualification test efforts required to obtain Type Classification and Full Materiel Release of the M3E1 w/Fire Control.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
New Weapon Systems Evaluations and Assessments: Will continue to explore new weapon system technologies and perform initial evaluations and assessments required to facilitate rapid acquisition of increased capabilities where applicable.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Fiscal Year (FY) 2021 increase in funds to complete production qualification testing for the M3E1.					
<b>Title:</b> Crew Served Weapons Enhancements  <b>Description:</b> Enhancements and developments of Crew Served weapons  <b>FY 2020 Plans:</b> FY 2020 New Start Efforts: Individual Non-Lethal System: Worked to address technical issues identified during prove out test, refined user requirements and initiated hardware contract for verification test in support of Type classification.  Also, Current and Legacy Weapon Improvements: Assessed and evaluated selected capabilities and improvements for all current and legacy weapon systems.  Small Business Innovation Research (SBIR) Enhancements: Continued to support Phase II Enhancement and/or initialization of Phase III SBIR activities.  <b>FY 2021 Base Plans:</b> Gunner Integrated Protection and Restraint System, Objective Gunner Protection Kit (GIPRS/OGPK): Complete developmental verification testing and begin operational testing for the TOW Missile Objective Gunner Protection Kit (TOGPK) 2.0. Will begin work on technical publications and prepare for TOGPK 2.0 type classification. Will prepare for ruggedization and qualification testing for the improved GIPRS Slip Ring.  Current and Legacy Weapon Improvements: Will continue to assess and evaluate selected capabilities and improvements for all current and legacy weapon systems.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding decrease as less support is now required for CSASS.	2.628	0.810	0.420	-	0.420
<b>Title:</b> Ammunition  <b>Description:</b> Improvement of Crew Served Weapons Ammunition	0.975	0.025	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b><i>FY 2020 Plans:</i></b> Ammunition Upgrades: Tested, evaluated and analyzed the effect of current and new ammunition on Crew Served Weapons.					
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Decrease in funds requested due to lack of requirement for Ammo.					
<b><i>Title:</i></b> Combat Optics					
<b><i>Description:</i></b> Improvement of Combat Optics					
<b><i>FY 2020 Plans:</i></b> FY 2020 New Start: Next Generation Optics: Integrated current and emerging target acquisition component technologies into a variable magnification spotting scope and into binoculars.					
Mounted Machinegun Optic: Continued integration efforts with airburst ammo through engineering studies and evaluation of emerging technologies for Mk19 MMO PPPI.					
<b><i>FY 2021 Base Plans:</i></b> Mounted Machinegun Optic (MMO): Continue MMO pre-planned product improvement (PPPI) R&D efforts for integration with HEDP airburst programmer ammo.					
Digital Spotting Scope (DSS): Will pursue transition of spotting scope technology investments towards development of next generation spotting scope system. DSS will include embedded digital overlays, fire control solutions with down range wind sensing, digital image enhancements to improve target discrimination and positive ID, networking capabilities, and covert target isolation and hand-off.					
Next Generation Optics: Continue engineering evaluations, verification and validation of weapon optics performance requirements, covert target isolation and hand-off.					
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> FY 2021 funding increase in funds due to launch of the new Digital Spotting Scope effort.					
<b><i>Title:</i></b> Research and Analysis					
<b><i>Description:</i></b> Market Research and Cost Benefit Analysis					
	0.530	0.421	2.497	-	2.497
	0.100	0.025	0.025	-	0.025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>FY 2020 Plans:</b> Continued Market Research and Cost Benefit Analysis of new small arms weapon systems and/or enhancements for engineering and manufacturing development.					
<b>FY 2021 Base Plans:</b> Will continue Market Research and Cost Benefit Analysis of new small arms weapons and/or enhancements. Continued research & analysis of mature technologies will inform engineering and manufacturing development required to facilitate rapid acquisition of increased capabilities where applicable.					
<b>Title:</b> FY 2020 SBIR/STTR Transfer <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638	-	0.117	-	-	-
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>Accomplishments/Planned Programs Subtotals</b>	10.568	2.589	4.263	-	4.263

	<b>FY 2019</b>	<b>FY 2020</b>
<b>Congressional Add:</b> FY 2019 Congressional Add: Cannon Life Extension-\$1.5 million & FY2019 ATR Next Generation Squad Weapons (NGSW-AR)- \$14.490 million	14.490	1.500
<b>FY 2019 Accomplishments:</b> FY 2019 Congressional Add: Cannon Life Extension-\$1.5 million & FY2019 ATR Next Generation Squad Weapons (NGSW-AR)- \$14.490 million		
<b>FY 2020 Plans:</b> FY 2019 Congressional Add: Cannon Life Extension-\$1.5 million & FY2019 ATR Next Generation Squad Weapons (NGSW-AR)- \$14.490 million		
<b>Congressional Adds Subtotals</b>	14.490	1.500

<b>C. Other Program Funding Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• S54: <i>Small Arms Improvement</i>	7.395	14.555	16.082	-	16.082	19.213	17.423	10.477	10.583	0.000	95.728

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2019	FY 2020	FY 2021	FY 2021	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Cost To	
			Base	OCO	Total					Complete	Total Cost
• FL8: <i>84mm MAAWS Ammunition</i>	-	4.040	3.131	-	3.131	2.997	-	-	-	0.000	10.168
• FM4: <i>Next Generation Squad Weapons</i>	-	33.080	44.837	-	44.837	13.767	15.456	16.045	10.991	0.000	134.176
• GZ1500: <i>Sniper Rifles Modifications</i>	2.747	2.426	1.898	-	1.898	1.855	1.890	1.792	2.111	Continuing	Continuing
• GZ1290: <i>M249 SAW Machine Gun MODS</i>	3.139	-	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• GZ1300: <i>M240 Medium Machine Gun MODS</i>	6.947	8.000	6.385	-	6.385	7.992	7.992	7.992	-	Continuing	Continuing
• GB3000: <i>MK-19 Grenade Machine Gun MODS</i>	1.684	3.737	6.444	-	6.444	11.666	14.369	-	-	Continuing	Continuing
• GB4000: <i>M2 50 Cal Machine Gun MODS</i>	19.098	6.090	0.000	-	0.000	-	-	-	-	0.000	25.188
• GC0925: <i>Modifications Less Than \$5.0m (WOCV-WTCV)</i>	6.362	4.327	2.604	-	2.604	2.360	2.336	2.713	3.608	Continuing	Continuing
• GL3200: <i>Items Less Than \$5.0m (WOCV-WTCV)</i>	4.571	3.066	2.763	-	2.763	2.866	2.974	3.171	3.196	Continuing	Continuing
• G13000: <i>M240 Medium Machine Gun (7.62mm)</i>	14.581	12.500	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• G01506: <i>Precision Sniper Rifle</i>	-	5.747	10.137	-	10.137	12.100	6.285	5.213	5.994	Continuing	Continuing
• G13101: <i>MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPON SYSTEM</i>	19.880	19.264	17.864	4.765	22.629	26.690	26.009	-	-	Continuing	Continuing

**Remarks**

In support of Small Arms Requirements, components or prototypes developed in BA 4 PE 0603827A Soldier Systems - Advanced Development Project S54 Small Arms Improvement transition to BA 5 PE 0604601A Infantry Support Weapons Project EW4 Crew Served Weapons Engineering Development to conduct engineering and manufacturing development. Once the component, prototype or operational prototype achieves Milestone C and type classification the item transitions to small arms weapon systems production or modification programs.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

**D. Acquisition Strategy**

Primary strategy is to mature and finalize design efforts, award Research, Development, Test and Evaluation (RDT&E) Department of Defense Ordnance Technology Consortium (DOTC) and other OTA type hardware contracts. Test and evaluate systems that result in type classification, material release, and follow-on production contract awards.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604601A / Infantry Support Weapons				EW4 / Crew Served Weapons Engineering Development							
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	1.051	0.715	Mar 2019	-		-		-		-	Continuing	Continuing	Continuing
Travel	MIPR	PM Soldier Weapons, : Picatinny Arsenal	0.220	0.135	Mar 2019	0.010	Mar 2020	0.013	Mar 2021	-		0.013	Continuing	Continuing	Continuing
FY2019 SBIR / STTR Transfer	FFRDC	Army Budget Office : Pentagon, Washington DC	-	0.984	Nov 2018	-		-		-		-	Continuing	Continuing	Continuing
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.117		-		-		-	0.000	0.117	-
<b>Subtotal</b>			1.271	1.834		0.127		0.013		-		0.013	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Fabrication	Various	Various : Multiple Contractors	0.550	4.384	Mar 2019	0.285	Mar 2020	0.300	Mar 2021	-		0.300	Continuing	Continuing	Continuing
Hardware Development	MIPR	Army Research Development Engineers Centers : Multiple	4.274	15.581	Mar 2019	0.035	Mar 2020	1.200	Mar 2021	-		1.200	Continuing	Continuing	Continuing
<b>Subtotal</b>			4.824	19.965		0.320		1.500		-		1.500	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	6.849	1.169	Mar 2019	0.986	Mar 2020	0.200	Mar 2021	-		0.200	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604601A / Infantry Support Weapons				Project (Number/Name) EW4 / Crew Served Weapons Engineering Development							
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Centers : Multiple													
Logistics	MIPR	Tank & Automotive Command (TACOM), : Warren	0.499	0.195	Mar 2019	0.036	Mar 2020	0.050	Mar 2021	-		0.050	Continuing	Continuing	Continuing
Human Research and Engineering	MIPR	Army Research Laboratory, : Aberdeen Proving Ground	0.437	0.297	Mar 2019	0.036	Mar 2020	0.050	Mar 2021	-		0.050	Continuing	Continuing	Continuing
<b>Subtotal</b>			7.785	1.661		1.058		0.300		-		0.300	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Developmental Test Command, : Aberdeen Proving Ground	3.215	0.868	Mar 2019	2.485	Mar 2020	1.200	Mar 2021	-		1.200	Continuing	Continuing	Continuing
Operational Testing	MIPR	Army Test and Evaluation Command, : Aberdeen Proving Ground	3.068	0.500	Mar 2019	0.065	Mar 2020	1.200	Mar 2021	-		1.200	Continuing	Continuing	Continuing
Validation Testing	MIPR	Army Test and Evaluation Centers, : Multiple	0.544	0.230	Mar 2019	0.034	Mar 2020	0.050	Mar 2021	-		0.050	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.827	1.598		2.584		2.450		-		2.450	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			20.707	25.058		4.089		4.263		-		4.263	Continuing	Continuing	N/A



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>NEW WEAPON SYSTEMS</b>																												
Next Generation Squad Weapon-Automatic Rifle	█				█																							
M3/M3E1 Multi-Role Anti-Armor Anti-Personnel Weapon System	█				█				█																			
Precision Sniper Rifle (PSR)	█				█																							
New Weapon Systems Evaluations and Assessments	█																											
<b>CREW SERVED WEAPON ENHANCEMENTS</b>																												
Compact Semi-Automatic Sniper System (CSASS)	█				█																							
Increased Barrel Life/Replace Chrome	█				█																							
M2 Lightweight Program	█				█																							
Weapons Upgrades and Accessories	█				█																							
Current and Legacy Weapon Improvements	█				█				█				█				█				█							
					Formerly Weapons Upgrades and Accessories																							
Gunner Integrated Protection and Restraint Systems (GIPRS)	█				█				█				█				█											
Individual Non-Lethal System	█				█				█				█				█				█							

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Small Business Innovation Research (SBIR) Enhancements	[Redacted]																											
<b>AMMUNITION</b>	[Redacted]																											
XM1112 Airburst Non-Lethal Munition (ANLM)	[Redacted]																											
Ammunition Upgrades	[Redacted]																											
<b>COMBAT OPTICS</b>	[Redacted]																											
Eagle Eye Digital Spotting Scope	[Redacted]																											
Optic Upgrades	[Redacted]																											
Next Generation Optics	[Redacted]																											
					Formerly Optic Upgrades																							
<b>RESEARCH AND ANALYSIS</b>	[Redacted]																											
Research and Analysis	[Redacted]																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NEW WEAPON SYSTEMS	1	2017	4	2025
Next Generation Squad Weapon-Automatic Rifle	1	2019	4	2019
M3/M3E1 Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS)	1	2017	4	2021
Precision Sniper Rifle (PSR)	1	2017	4	2020
New Weapon Systems Evaluations and Assessments	1	2018	4	2025
CREW SERVED WEAPON ENHANCEMENTS	1	2017	4	2025
Compact Semi-Automatic Sniper System (CSASS)	1	2017	4	2019
Increased Barrel Life/Replace Chrome	1	2019	4	2020
M2 Lightweight Program	1	2018	4	2020
Weapons Upgrades and Accessories	1	2017	4	2019
Current and Legacy Weapon Improvements	1	2020	4	2025
Gunner Integrated Protection and Restraint Systems (GIPRS/OGPK)	1	2017	4	2023
Individual Non-Lethal System	1	2021	4	2025
Small Business Innovation Research (SBIR) Enhancements	1	2017	4	2025
AMMUNITION	1	2017	4	2020
XM1112 Airburst Non-Lethal Munition (ANLM)	1	2017	4	2020
Ammunition Upgrades	1	2017	4	2020
COMBAT OPTICS	1	2017	4	2025
Eagle Eye Digital Spotting Scope	1	2021	4	2022
Optic Upgrades	1	2017	4	2019
Next Generation Optics	1	2020	4	2025
FIRE CONTROL	1	2017	4	2017

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> EW4 / <i>Crew Served Weapons Engineering Development</i>

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Fire Control with Hyperspectral Target	1	2017	4	2017
Advanced Fire Control with Precision Projectile/Dynamic	1	2017	4	2017
Fire Control Upgrades	1	2017	4	2017
RESEARCH AND ANALYSIS	1	2017	4	2025
Research and Analysis	1	2017	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
FF2: <i>Small Arms Fire Control</i>	-	4.094	14.700	10.153	-	10.153	11.244	7.993	9.991	9.992	0.000	68.167
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Next Generation Squad Weapon - Fire Control (NGSW-FC) is an advanced fire control device to support the Next Generation Squad Weapons. NGSW-FC increases the probability of hit and decreases the time to engage through a variable powered direct view optic with integrated range finder, ballistic calculator, and digital display capable of providing an adjusted aim point. The NGSW-FC will utilize open architecture to deliver the initial increased core capability followed by increasing increments of capability/enhancements over time as technology matures and evolves. Capability enhancements will be developed through iterative prototyping that may include technology such as advanced camera based capabilities; optical augmentation; aim augmentation; weapon stabilization; wind sensing; optimization of size, weight, and power; advanced network lethality; advanced ruggedization; and augmented reality.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Design, Develop and Fabricate	3.257	11.778	5.826	-	5.826
<b>Description:</b> Includes contract awards for the Engineering and Manufacturing Development (EMD) of all Fire Control configurations, enhancements, and hand held devices.					
<b>FY 2020 Plans:</b> Awarded two independent fixed amount Other Transaction Agreements (OTAs) with two separate vendors for the rapid prototyping, design and development of the Next Generation Squad Weapon - Fire Control (NGSW-FC). Each vendor delivered one hundred and fifteen NGSW-FC prototype systems for government testing and Soldier evaluation.					
<b>FY 2021 Base Plans:</b> Will continue to conduct iterative prototype efforts to design, develop, and fabricate enhancements to the NGSW-FC, conduct technical system engineering reviews, and implementation plans for iterative prototype components. Will award agreements or contracts to conduct iterative prototype efforts.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease in Fiscal Year (FY) 2021 funding is due to Rapid Prototyping phase of the NGSW-FC initial prototype being mostly conducted in FY 2020. FY 2021 developmental and fabrication will focus on iterative prototyping efforts.					
<b>Title:</b> Engineering Support	0.570	1.485	2.015	-	2.015

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p><b>Description:</b> Government engineering support, providing oversight of design development and contractor performance.</p> <p><b>FY 2020 Plans:</b> Provided engineering support and oversight of design improvements and contractor performance. Provided oversight of developmental and operational test activities, preliminary and critical design reviews. Participated in source selection activities and technical reviews.</p> <p><b>FY 2021 Base Plans:</b> Will continue to provide government engineering support at laboratories and engineering centers, providing design, limited testing and oversight of development and contractor performance. Will begin planning and documentation that will be required for iterative prototyping for system enhancements.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding will increase due to larger engineering support requirement for the NGSW-FC, significant NGSW-FC prototype testing events, down-selection, and associated iterative prototype efforts.</p>					
<p><b>Title:</b> Test and Evaluation</p> <p><b>Description:</b> Government testing and evaluation of prototypes, articles and improvements. Includes Soldier Touch Point evaluations.</p> <p><b>FY 2020 Plans:</b> Prototype systems was tested both for technical capability as well as user evaluation. Developed test and evaluation criteria, test and evaluate improvements of prototypes and documented all results.</p> <p><b>FY 2021 Base Plans:</b> NGSW-FC prototype systems will continue to undergo technical optical lab testing, environmental testing, electromagnetic environment effects (E3) testing, and soldier touch point user evaluations. Will continue to conduct all required testing and analysis to support source selection along with production and fielding decision.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding increase due to delivery of prototypes being tested in FY 2021 for NGSW-FC.</p>	0.131	0.687	2.228	-	2.228
<p><b>Title:</b> Program Management</p> <p><b>Description:</b> Program management office non-labor activities, to include travel and other indirect costs.</p> <p><b>FY 2020 Plans:</b></p>	0.032	0.082	0.084	-	0.084

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Provided for administrative costs incurred by the Program Management office, to include travel, contractor service support, and other requirements to support the program.  <b><i>FY 2021 Base Plans:</i></b> Will continue to provide for administrative costs incurred by the Program Management office, to include travel, contractor service support, and other requirements to support the program.  <b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Slight increase in cost for equivalent level of effort in FY 2021.					
<b>Title:</b> FY 2019 Rescission (0604601A/S62)	0.104	-	-	-	-
<b>Title:</b> FY 2020 SBIR/STTR Transfer  <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638  <b><i>FY 2020 Plans:</i></b> Funding transferred in accordance with Title 15 USC ?638  <b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Funding transferred in accordance with Title 15 USC ?638	-	0.668	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	4.094	14.700	10.153	-	10.153

<b>C. Other Program Funding Summary (\$ in Millions)</b>			<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>						<u>Cost To</u>
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Complete</u>	<u>Total Cost</u>
• S54: <i>Small Arms Improvement</i>	7.395	14.555	16.082	-	16.082	19.213	17.423	10.477	10.583	0.000	95.728
• G14513: <i>Next Generation Squad Weapon - Fire Control</i>	-	-	35.822	-	35.822	86.560	178.950	250.932	266.934	0.000	819.198

**Remarks**

**D. Acquisition Strategy**  
 The NGSW-FC program is a Middle Tier Acquisition (MTA) program utilizing Rapid Prototyping authority under Section 804 of the FY 2016 National Defense Authorization Act (NDAA). A full and open competition will select two vendors for fixed amount Other Transaction Authority (OTA) awards to mature and finalize system designs and conduct test and evaluation. Upon successful completion of the prototyping effort, the Government will award follow on production contract(s) for the NGSW-FC without further competition.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2019 Rescission (0604601A/S62)	Allot	Army Budget Office : Pentagon	-	0.104	Sep 2019	-		-		-		-	0.000	0.104	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.668		-		-		-	0.000	0.668	-
<b>Subtotal</b>			-	0.104		0.668		-		-		-	0.000	0.772	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Next Generation Fire Control - Rapid Prototyping OTA	C/TBD	VENDOR 1: Army Contracting Command - New Jersey (ACC-NJ) : Picatinny Arsenal, NJ	-	-		5.833	Apr 2020	2.913	Jan 2021	-		2.913	Continuing	Continuing	-
Next Generation Fire Control - Rapid Prototyping OTA	C/TBD	VENDOR 2: Army Contracting Command - New Jersey (ACC-NJ) : Picatinny Arsenal, NJ	-	-		5.833	Apr 2020	2.913	Jan 2021	-		2.913	Continuing	Continuing	-
Engineering & Manufacturing Development Contract #3 - Other	C/FFP	TBD : TBD	-	1.051	Feb 2019	-		-		-		-	0.000	1.051	-
Engineering & Manufacturing Development Contract #4- Squad Fire Control	C/FFP	TBD : TBD	-	2.206	Aug 2019	-		-		-		-	0.000	2.206	-
<b>Subtotal</b>			-	3.257		11.666		5.826		-		5.826	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Support	MIPR	Combat Capability Development Command - Armaments Center (CCDC-AC) : Picatinny Arsenal, NJ	-	0.570	Oct 2018	1.541	Nov 2019	2.015	Nov 2020	-		2.015	Continuing	Continuing	-
Program Management (Non-Labor)	Allot	Project Manager Soldier Weapons (PMSW) /Non-Labor : Picatinny Arsenal, NJ	-	0.032	Oct 2018	0.082	Nov 2019	0.084	Nov 2020	-		0.084	Continuing	Continuing	-
<b>Subtotal</b>			-	0.602		1.623		2.099		-		2.099	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	MIPR	US Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	-	0.131	Nov 2018	0.743	Mar 2020	2.228	Mar 2021	-		2.228	Continuing	Continuing	-
<b>Subtotal</b>			-	0.131		0.743		2.228		-		2.228	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
	<b>Project Cost Totals</b>		-	4.094	14.700	10.153	-	10.153	Continuing	Continuing

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020


<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>Rapid Prototyping - Fire Control</b>	<div style="display: flex; justify-content: space-between; padding: 5px;"> <span>1</span> <span>2</span> <span>3</span> <span>4</span> <span>5</span> <span>6</span> <span>7</span> <span>8</span> <span>9</span> <span>10</span> <span>11</span> <span>12</span> <span>13</span> <span>14</span> <span>15</span> <span>16</span> <span>17</span> <span>18</span> <span>19</span> <span>20</span> <span>21</span> <span>22</span> <span>23</span> <span>24</span> <span>25</span> <span>26</span> <span>27</span> <span>28</span> </div>																											
Prototype Opportunity Notice																												
Other Transaction Agreement (OTA) Award - Rapid Prototyping																												
VENDOR 1 - Contractor Design and Prototype Fabrication																												
VENDOR 2 - Contractor Design and Prototype Fabrication																												
Engineering Support - Rapid Prototyping																												
Prototype Testing and Evaluation																												
Production Decision - NGFC																												
Iterative Prototyping - Fire Control Enhancements																												
OTA Awards - Iterative Prototyping																												
Contractor Design and Prototype Fabrication																												
Engineering Support - Iterative Prototyping																												
Test and Evaluation - Iterative Prototyping Testing 1																												

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Test and Evaluation - Iterative Prototyping Testing 2  Engineering Change Proposal (ECP) 1																												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FF2 / <i>Small Arms Fire Control</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Rapid Prototyping - Fire Control	1	2019	4	2021
Prototype Opportunity Notice	3	2019	3	2019
Other Transaction Agreement (OTA) Award - Rapid Prototyping	3	2020	3	2020
VENDOR 1 - Contractor Design and Prototype Fabrication	3	2020	4	2021
VENDOR 2 - Contractor Design and Prototype Fabrication	3	2020	4	2021
Engineering Support - Rapid Prototyping	1	2019	4	2021
Prototype Testing and Evaluation	1	2021	1	2021
Production Decision - NGFC	4	2021	4	2021
Iterative Prototyping - Fire Control Enhancements	1	2021	4	2025
OTA Awards - Iterative Prototyping	1	2022	1	2022
Contractor Design and Prototype Fabrication	1	2022	4	2025
Engineering Support - Iterative Prototyping	1	2022	4	2025
Test and Evaluation - Iterative Prototyping Testing 1	2	2023	4	2023
Test and Evaluation - Iterative Prototyping Testing 2	4	2024	1	2025
Engineering Change Proposal (ECP) 1	4	2025	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> F12 / <i>Lightweight 30mm Cannon</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
F12: <i>Lightweight 30mm Cannon</i>	-	0.000	1.384	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.384
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program supported the Army's 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). There is no funding request for Fiscal Year (FY) 2021.

**A. Mission Description and Budget Item Justification**

Project F12 Lightweight 30 millimeter (mm) Cannon provides increased lethality modifications to Product Directorate Counter-Rockets, Artillery and Mortar (PD C-RAM) on their mine-resistant ambush-protected (MRAP) All-Terrain Vehicle, Mine Counter Measure- Low-slow-small Integrated Defense System (MCM-LIDS) Platforms, and United States Marine Corps (USMC). Funds will provide safety qualification testing of the weapon and include weapon modifications such as percussion primed weapons for future procurements and integration testing on various remote weapon stations.

In support of an USMC Joint Urgent Operational Need Statement (JUONS) CC-0558 to provide an increased lethality modification for Product Directorate Counter Rocket Artillery Mortars (PD C-RAM) and any future requirement that requires 30mm increased lethality.

The XM914 is an upgraded and modified version of the M230 cannon currently equipped on the AH-64 Apache advanced attack helicopter. The XM914 is a link fed, externally powered and electrically primed 30mm chain gun, capable of firing two hundred rounds per minute. The gun incorporates an anti-hangfire system and an extended barrel for enhanced muzzle velocity. The XM914 provides significant lethality improvements over the current M2 .50 caliber machine gun and MK19 grenade machine gun and provides the capability required for Soldiers in a combat environment to engage enemy personnel and light armored targets.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Contractor Design and Prototype Fabrication	-	0.844	-	-	-
<b>Description:</b> Includes contractor design, development and prototype fabrication for engineering and manufacturing development of the XM914 30 millimeter (mm) autocannon.					
<b>FY 2020 Plans:</b> Contractor continued to develop and fabricate modifications and prototypes for engineering and manufacturing development of the XM914 30mm autocannon.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> F12 / <i>Lightweight 30mm Cannon</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>This program supports the Army's 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 Security Strategy (NDS). There is no funding request for FY 2021.</p>					
<p><b>Title:</b> Engineering Support</p> <p><b>Description:</b> Government engineering support at lab/center, providing design, limited testing and oversight of development and contractor performance.</p> <p><b>FY 2020 Plans:</b> Government engineering support continued to provide oversight of modifications, development and contractor performance.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> This program supported the Army's 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). There is no funding request for Fiscal Year (FY) 2021.</p>	-	0.384	-	-	-
<p><b>Title:</b> Test and Evaluation</p> <p><b>Description:</b> Government testing and evaluation of weapon prototype, articles and system improvements.</p> <p><b>FY 2020 Plans:</b> Government continued to test and evaluation modifications, prototypes, test articles and system improvements.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> This program supported the Army's 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 NDS. There is no funding request for FY 2021.</p>	-	0.084	-	-	-
<p><b>Title:</b> Program Management</p> <p><b>Description:</b> Program management office provides oversight of contract actions, engineering support and test activities.</p> <p><b>FY 2020 Plans:</b></p>	-	0.009	-	-	-

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> F12 / <i>Lightweight 30mm Cannon</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Program management office continued to provide oversight of contractor development and fabrication, engineering support at government facilities, and test and evaluation of system modifications and improvements.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> This program supported the Army's 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 NDS. There is no funding request for Fiscal Year FY 2021.</p>					
<p><b>Title:</b> FY 2020 SBIR/STTR Transfer</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC ?638</p> <p><b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638</p>	-	0.063	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	-	1.384	-	-	-

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• G13800: GUN AUTOMATIC 30MM M230	-	20.000	0.000	-	0.000	-	-	-	-	0.000	20.000

**Remarks**  
This program supported the Army's 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 NDS. There is no funding request for FY 2021.

**D. Acquisition Strategy**  
The XM914 is currently considered a non-standard weapon that is being sold commercially to foreign customers by the vendor. As a modified version of the M230 30mm chain gun for the AH-64 Apache advanced attack helicopter, the XM914 requires safety confirmation/safety release and weapon qualification for vehicle mounted platforms. A long term, Indefinite Delivery/Indefinite Quantity (ID/IQ) Requirements type contract will be pursued once a production requirement is finalized. The contract may also include contract options for remote weapon station procurements to allow vehicle/platform PMs to procure the total weapon system. A sole source contract is currently being developed for a USMC procurement requirement for 30 mm weapons under JUONS CC-0558.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
2040 / 5	PE 0604601A / <i>Infantry Support Weapons</i>	F12 / <i>Lightweight 30mm Cannon</i>

The program supports new and emerging urgent requirements and will support integration with ground vehicle platforms.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> F12 / <i>Lightweight 30mm Cannon</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	MIPR	PM Soldier Weapons : Picatinny Arsenal, NJ	0.080	-		0.009	Oct 2019	-		-		-	0.000	0.089	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.063		-		-		-	0.000	0.063	-
<b>Subtotal</b>			0.080	-		0.072		-		-		-	0.000	0.152	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Design and Prototype Fabrication	SS/FFP	Northrop Grumman : Mesa, AZ	5.200	-		0.844	Nov 2019	-		-		-	0.000	6.044	-
<b>Subtotal</b>			5.200	-		0.844		-		-		-	0.000	6.044	N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Support	MIPR	Multiple Other Government Agencies : Multiple	1.350	-		0.384	Oct 2019	-		-		-	0.000	1.734	-
<b>Subtotal</b>			1.350	-		0.384		-		-		-	0.000	1.734	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	1.650	-		0.084	Dec 2019	-		-		-	0.000	1.734	-



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> F12 / <i>Lightweight 30mm Cannon</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Contractor Design and Prototype Fabrication (Phase II)																												
Engineering Support (Phase II)																												
Test and Evaluation (Phase II)																												
Program Management (Phase II)																												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> F12 / <i>Lightweight 30mm Cannon</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Contractor Design and Prototype Fabrication (Phase I)	1	2018	4	2018
Engineering Support (Phase I)	1	2018	4	2018
Test and Evaluation (Phase I)	1	2018	4	2018
Program Management (Phase I)	1	2018	4	2018
Contractor Design and Prototype Fabrication (Phase II)	1	2020	4	2020
Engineering Support (Phase II)	1	2020	4	2020
Test and Evaluation (Phase II)	1	2020	4	2020
Program Management (Phase II)	1	2020	4	2020

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> FL8 / <i>84mm MAAWS Ammunition</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
FL8: <i>84mm MAAWS Ammunition</i>	-	0.000	4.040	3.131	-	3.131	2.997	0.000	0.000	0.000	0.000	10.168
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Project FL8 84mm MAAWS Ammunition will test, evaluate and qualify up to seven types of 84 millimeters (mm) munitions for United States (U.S.) Army use with the M3/M3A1 Multi-Role Anti-Armor Anti-Personnel Weapon Systems (MAAWS). In addition to type classifying existing rounds, funds will also provide for the evaluation and qualification of the new High Explosive Programmable Airbursting Round. These rounds will provide improved lethality and a higher probability of hit in defilade positions for close combat forces against varying target sets and increased ranges in support of Infantry Squad formations. The M3/M3A1 is a HQDA G8 directed requirement scheduled for Full Material Release 4th Quarter (Q) Fiscal Year (FY) 2022.

FY 2021 funding in the amount of \$3.131 million will be used to acquire prototypes and support test and evaluation efforts for the new programmable round.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Munition Prototype Development & Demonstration	-	2.995	2.550	-	2.550
<b>Description:</b> Includes ammunition engineering and manufacturing, contract awards for prototypes, development and demonstration.					
<b>FY 2020 Plans:</b> Contract award begun the development of the programmable round. Initial prototypes were delivered, functional and critical design reviews were conducted.					
<b>FY 2021 Base Plans:</b> Plan to complete development and design reviews of the High Explosive (HE) programmable round for Type Classification and Full Material Release (TC-FMR), currently scheduled for FY 2022- 2023.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding decrease as only one round type will be procured.					
<b>Title:</b> Engineering Support	-	0.274	0.130	-	0.130
<b>Description:</b> Government engineering support, providing oversight of design development and contractor performance.					
<b>FY 2020 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FL8 / <i>84mm MAAWS Ammunition</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>Provided engineering support and oversight of ammunition design and function. Participated in Integrated Product Team (IPT) and technical reviews.</p> <p><b>FY 2021 Base Plans:</b> Continue to provide engineering support and oversight of ammunition design and function. Continue to participate in IPT, technical reviews and T&amp;E efforts.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding decrease due to less engineering support being required after completion of design.</p>					
<p><b>Title:</b> Test and Evaluation</p> <p><b>Description:</b> Funds will support the following efforts:</p> <p><b>FY 2020 Plans:</b> Developed test and evaluation master plan to evaluate and analyze the effect of Commercial Off The Shelf (COTS) 84mm programmable round for type classification.</p> <p><b>FY 2021 Base Plans:</b> Continue to complete developmental test and evaluation efforts of the programmable round and begin production qualification testing.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding increase for production qualification test efforts.</p>	-	0.064	0.250	-	0.250
<p><b>Title:</b> Program Management</p> <p><b>Description:</b> Funds will support the following efforts:</p> <p><b>FY 2020 Plans:</b> Provided project oversight, program management, non-labor operations, and contractor support.</p> <p><b>FY 2021 Base Plans:</b> Continue to provide project oversight, program management, non-labor operations, and contractor support.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding decrease as less project oversight is required.</p>	-	0.524	0.201	-	0.201
<p><b>Title:</b> FY 2020 SBIR/STTR Transfer</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC ?638</p>	-	0.183	-	-	-

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FL8 / <i>84mm MAAWS Ammunition</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b><i>FY 2020 Plans:</i></b> Funding transferred in accordance with Title 15 USC ?638					
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Funding transferred in accordance with Title 15 USC ?638					
<b>Accomplishments/Planned Programs Subtotals</b>	-	4.040	3.131	-	3.131

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• EW4: <i>Crew Served Weapons Engineering Development</i>	25.058	4.089	4.263	-	4.263	4.285	4.423	4.525	4.498	0.000	51.141
• G13101: <i>MULTI-ROLE ANTI-ARMOR ANTI-PERSONNEL WEAPON SYSTEM</i>	19.880	19.264	17.864	4.765	22.629	26.690	26.009	-	-	Continuing	Continuing
• OMA - 137010000: <i>RESET</i>	-	-	-	-	-	-	-	-	-		

**Remarks**

**D. Acquisition Strategy**  
Will use Other Transaction Authority (OTA) via the DoD Ordnance Technology Consortium (DOTC) to obtain commercially available 84mm ammunition for test and evaluation purposes. A long term Indefinite Delivery/Indefinite Quantity (IDIQ) type contract will be pursued for follow on orders.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604601A / Infantry Support Weapons				FL8 / 84mm MAAWS Ammunition								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	MIPR	PMSW : Picatinny Arsenal, NJ	-	-		0.524	Oct 2019	0.201	Oct 2020	-		0.201	0.000	0.725	Continuing	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.183		-		-		-	0.000	0.183	-	
<b>Subtotal</b>			-	-		0.707		0.201		-		0.201	0.000	0.908	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Munitions Prototype	SS/CPFF	SAAB : Sweden	-	-		2.995	Nov 2019	2.550	Nov 2020	-		2.550	0.000	5.545	Continuing	
<b>Subtotal</b>			-	-		2.995		2.550		-		2.550	0.000	5.545	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	ARDEC : Picatinny Arsenal, NJ	-	-		0.274	Nov 2019	0.130	Oct 2020	-		0.130	0.000	0.404	Continuing	
<b>Subtotal</b>			-	-		0.274		0.130		-		0.130	0.000	0.404	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Test & Evaluation	MIPR	A TEC : Aberdeen, MD	-	-		0.064	Aug 2020	0.250	Oct 2020	-		0.250	0.000	0.314	Continuing	
<b>Subtotal</b>			-	-		0.064		0.250		-		0.250	0.000	0.314	N/A	

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2021 Army</b>								<b>Date: February 2020</b>			
<b>Appropriation/Budget Activity</b> 2040 / 5				<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> FL8 / <i>84mm MAAWS Ammunition</i>			
	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>		
<b>Project Cost Totals</b>	-	-	4.040	3.131	-	3.131	0.000	7.171	N/A		

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FL8 / <i>84mm MAAWS Ammunition</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Materiel Development Decision					▲1																							
DOTC Contract Award					▲2																							
Critical Design Review					▲3																							
Prototype Delivery					▲4																							
Developmental Testing																												
MS-C & TC-STD																	▲5											
Full Material Release (FMR)																	▲6											

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FL8 / <i>84mm MAAWS Ammunition</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Matériel Development Decision	4	2019	4	2019
DOTC Contract Award	1	2020	1	2020
Critical Design Review	2	2020	2	2020
Prototype Delivery	1	2021	1	2021
Developmental Testing	4	2020	3	2022
MS-C & TC-STD	3	2022	3	2022
Full Material Release (FMR)	2	2023	2	2023

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
FM4: <i>Next Generation Squad Weapons</i>	-	0.000	33.080	44.837	-	44.837	13.767	15.456	16.045	10.991	0.000	134.176
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Next Generation Squad Weapons (NGSW) program will develop weapon systems and common 6.8mm cartridge to maintain overmatch and meet future force warfighter needs.

The Next Generation Squad Weapon-Rifle (NGSW-R) is the planned replacement for the M4A1 Carbine in the close combat force and select support units. The NGSW-R will provide capability improvements in accuracy, range, and lethality.

The Next Generation Squad Weapon-Automatic Rifle (NGSW-AR) is the planned replacement for the M249 Squad Automatic Weapon (SAW) in the close combat force and select support units. The NGSW-AR combines the firepower and range of a machine gun with the precision and ergonomics of a carbine, yielding capability improvements in accuracy, range, and lethality.

The NGSW-R and NGSW-AR will use a common 6.8mm cartridge in a variety of ammunition types: general purpose (GP), special purpose (SP), reduced range, and blank.

Development efforts for additional NGSW variants may follow to replace other legacy systems or provide additional enhanced capabilities.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Contractor Design and Prototype Fabrication	-	25.848	12.886	-	12.886
<b>Description:</b> Contractor design, development and fabrication of prototypes.					
<b>FY 2020 Plans:</b>					
Included contractor design, development and prototype fabrication for engineering and manufacturing development of the NGSW. NGSW interfaced with Squad Fire Control, Family of Weapon Sights - Individual, and other enablers. Up to three contractors delivered approximately 45 automatic prototype rifles, 24 prototype rifles and associated ammunition for Government testing.					
<b>FY 2021 Base Plans:</b>					
Includes the second iteration of contractor design, development and prototype fabrication evaluated in Prototype Test II for rapid prototyping of the Next Generation Squad Weapon - Rifle and Automatic Rifle. Each of the three					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>contractors will each deliver thirty-eight (38) prototype rifles, twenty-eight (28) prototype automatic rifles and six hundred sixty thousand (660,000) surrogate and general purpose rounds of ammunition for government testing and soldier touch point evaluations. Contractors will also develop and deliver the Technical Data Packages (TDP) to support final design configuration of the rifle, automatic rifle, and ammunition.</p> <p><b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Additional Fiscal Year (FY) 2021 funding is required to fabricate a larger quantity of prototypes to support the Prototype Test II, which will have a more robust scope than the first phase of prototype testing conducted in FY 2020.</p>					
<p><b><i>Title:</i></b> Engineering Support</p> <p><b><i>Description:</i></b> Government engineering support, providing oversight of design, development and contractor performance.</p> <p><b><i>FY 2020 Plans:</i></b> Provided government engineering support at lab/center, providing design, limited testing and oversight of development and contractor performance.</p> <p><b><i>FY 2021 Base Plans:</i></b> Will continue to provide government engineering support at laboratories and engineering centers, providing design, limited testing and oversight of development and contractor performance. Will support the second phase of prototype testing (PT2) and several Soldier Touch Point events. Will begin planning and documentation in support of down-selection and production scope.</p> <p><b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Increase to FY 2021 funding is planned for government engineering support required for the second prototype test (PT2) and multiple Soldier Touch Point events, as well as for the planning required to begin production.</p>	-	3.151	4.470	-	4.470
<p><b><i>Title:</i></b> Test and Evaluation</p> <p><b><i>Description:</i></b> Testing and evaluation at government ranges and facilities.</p> <p><b><i>FY 2020 Plans:</i></b> Provided government testing and evaluation of weapon prototype, articles and system improvements.</p> <p><b><i>FY 2021 Base Plans:</i></b></p>	-	2.329	6.590	-	6.590

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Government testing and evaluation of the second design iteration of prototype rifle, automatic rifle and associated ammunition. Prototype Test II will assess the final prototype configuration and support the production award decision in the first quarter (1Q) of FY 2022.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The duration and scope of Prototype Test II will be approximately double that of the first phase of prototype testing in FY 2020, in order to fully assess final prototype performance and down-selection.					
<b>Title:</b> Program Management  <b>Description:</b> Program office management and oversight of government and contractor efforts.  <b>FY 2020 Plans:</b> Program management office provided oversight of contract actions, engineering support and test activities.  <b>FY 2021 Base Plans:</b> Program management office will continue to provide oversight of contract actions, engineering support and test activities.	-	0.250	0.250	-	0.250
<b>Title:</b> Blank Cartridge and Blank Firing Weapon Adaption Kit Development  <b>FY 2021 Base Plans:</b> Will begin development and rapid prototyping of a blank cartridge and weapon adaption kit (that will ensure lethal rounds cannot be fired when Soldiers are training with blanks). Will begin work with the selected vendor to integrate blanks and blank firing adapters to the Next Generation Squad Weapon (NGSW) Rifle and Automatic Rifle.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Following vendor down-selection, work will begin with the selected vendor on the blank cartridge and the blank firing weapon adaptation kit.	-	-	4.038	-	4.038
<b>Title:</b> Reduced Range Cartridge Development and Integration  <b>FY 2021 Base Plans:</b> Will begin work with the selected vendor to finalize design and manufacturing development of a reduced range cartridge and integration with the Next Generation Squad Weapon (NGSW) Rifle and Automatic Rifle.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>	-	-	7.799	-	7.799

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Following vendor down-selection, work will begin with the selected vendor on the integration of the reduced range cartridge.					
<b>Title:</b> Special Purpose Cartridge Development and Integration	-	-	8.804	-	8.804
<b>FY 2021 Base Plans:</b> Will begin work with the vendor to finalize design and manufacturing development of the SP cartridge and integration with the NGSW Rifle and Automatic Rifle.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Following vendor down-selection, work will begin with the selected vendor on the integration of the SP cartridge.					
<b>Title:</b> FY 2020 SBIR/STTR Transfer	-	1.502	-	-	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638					
<b>Accomplishments/Planned Programs Subtotals</b>	-	33.080	44.837	-	44.837

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• S54: <i>Small Arms Improvement</i>	7.395	14.555	16.082	-	16.082	19.213	17.423	10.477	10.583	0.000	95.728
• EW4: <i>Crew Served Weapons Engineering Development</i>	25.058	4.089	4.263	-	4.263	4.285	4.423	4.525	4.498	0.000	51.141
• S63: <i>Individual Weapons Engineering Development</i>	12.454	2.697	4.374	-	4.374	4.214	4.280	4.270	4.216	0.000	36.505
• FL4: <i>Small Caliber Ammo for Next Gen Squad Weapons</i>	-	18.180	30.600	-	30.600	28.723	24.976	11.739	11.858	0.000	126.076
• EP5: <i>Adv Armor-Piercing (ADVAP) for Small Caliber Ammo</i>	20.247	-	0.000	-	0.000	-	-	-	-	0.000	20.247
• G14511: <i>Next Generation Squad Weapon-Automatic Rifle</i>	-	-	0.000	-	0.000	6.066	12.447	35.165	42.009	0.000	95.687

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• G14512: <i>Next Generation Squad Weapon-Carbine</i>	-	-	0.000	-	0.000	5.994	24.975	49.950	74.925	0.000	155.844
• E06001: <i>NEXT GENERATION SQUAD WEAPON AMMUNITION</i>	-	-	11.988	-	11.988	20.519	60.880	187.813	189.692	0.000	470.892

**Remarks**

**D. Acquisition Strategy**

The NGSW program is a Middle Tier Acquisition (MTA) program utilizing Rapid Prototyping authority under Section 804 of the FY 2016 National Defense Authorization Act (NDAA). A full and open competition selected three vendors for fixed amount Other Transaction Authority (OTA) awards to mature and finalize system designs and conduct test and evaluation. Upon successful completion of the prototyping effort, the Government will award follow on production contract(s) for the NGSW-R, the NGSW-AR, and 6.8mm common ammunition, without further competition.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	Allot	PM Soldier Weapons : Picatinny Arsenal, NJ	-	-		-		0.250	Oct 2020	-		0.250	0.000	0.250	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		1.502		-		-		-	0.000	1.502	-
<b>Subtotal</b>			-	-		1.502		0.250		-		0.250	0.000	1.752	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prototype Opportunity Notice	C/TBD	VENDOR 1 : ACC-NJ, Picatinny Arsenal, NJ	-	-		8.532	Jan 2020	2.271	Nov 2020	-		2.271	0.000	10.803	-
Prototype Opportunity Notice	C/TBD	VENDOR 2 : ACC-NJ, Picatinny Arsenal, NJ	-	-		8.532	Jan 2020	3.967	Nov 2020	-		3.967	0.000	12.499	-
Prototype Opportunity Notice	C/TBD	VENDOR 3 : ACC-NJ, Picatinny Arsenal, NJ	-	-		8.532	Jan 2020	6.648	Nov 2020	-		6.648	0.000	15.180	-
Blank Cartridge and Blank Firing Weapon Adaptation Kit Development	C/TBD	VENDOR TBD : ACC-NJ, Picatinny Arsenal, NJ	-	-		-		4.038	Sep 2021	-		4.038	0.000	4.038	-
Reduced Range Cartridge Development and Integration	C/TBD	VENDOR TBD : ACC-NJ, Picatinny Arsenal, NJ	-	-		-		7.799	Sep 2021	-		7.799	0.000	7.799	-
Special Purpose Cartridge Development and Integration	C/TBD	VENDOR TBD : ACC-NJ, Picatinny Arsenal, NJ	-	-		-		8.804	Sep 2021	-		8.804	0.000	8.804	-
<b>Subtotal</b>			-	-		25.596		33.527		-		33.527	0.000	59.123	N/A

**Remarks**  
Blank Cartridge and Blank Firing Weapon Adaptation Kit Development, Reduced Range Cartridge Development and Integration, and Special Purpose Cartridge Development and Integration will be vendor efforts awarded to the company selected for production of the NGSW Rifle and Automatic Rifle.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025										
	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							
<b>Rapid Prototyping - Rifle / AR / Common Cartridge</b>																																			
Prototype Opportunity Notice	▲1																																		
Other Transaction Agreements (OTA) Award - Rapid Prototyping				▲2																															
VENDOR 1 - Contractor Design and Prototype Fabrication																																			
VENDOR 2 - Contractor Design and Prototype Fabrication																																			
VENDOR 3 - Contractor Design and Prototype Fabrication																																			
VENDOR TBD - Production Down-Selection												▲3																							
Blank Cartridge & Firing Weapon Adaptation Kit Development																																			
Reduced Range Cartridge Development and Integration																																			
Special Purpose Cartridge Development and Integration																																			
Engineering Support																																			
Prototype Testing (Phase I) - Test and Evaluation																																			
Prototype Testing (Phase II) - Test and Evaluation																																			

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>Iterative Prototyping - Improvements</b>																												
OTA Awards - Iterative Prototyping																												
Contractor Design and Prototype Fabrication																												
Engineering Support - Iterative Prototyping																												
Test and Evaluation																												
Engineering Change Proposal (ECP) #1																												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> FM4 / <i>Next Generation Squad Weapons</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Rapid Prototyping - Rifle / AR / Common Cartridge	4	2019	4	2021
Prototype Opportunity Notice	2	2019	2	2019
Other Transaction Agreements (OTA) Award - Rapid Prototyping	4	2019	4	2019
VENDOR 1 - Contractor Design and Prototype Fabrication	4	2019	4	2021
VENDOR 2 - Contractor Design and Prototype Fabrication	4	2019	4	2021
VENDOR 3 - Contractor Design and Prototype Fabrication	4	2019	4	2021
VENDOR TBD - Production Down-Selection	1	2022	1	2022
Blank Cartridge & Firing Weapon Adaptation Kit Development	4	2021	1	2023
Reduced Range Cartridge Development and Integration	4	2021	4	2023
Special Purpose Cartridge Development and Integration	4	2021	2	2023
Engineering Support	1	2019	1	2023
Prototype Testing (Phase I) - Test and Evaluation	3	2020	4	2020
Prototype Testing (Phase II) - Test and Evaluation	2	2021	4	2021
Iterative Prototyping - Improvements	1	2022	4	2025
OTA Awards - Iterative Prototyping	1	2023	1	2023
Contractor Design and Prototype Fabrication	1	2023	4	2025
Engineering Support - Iterative Prototyping	4	2022	4	2025
Test and Evaluation	4	2024	2	2025
Engineering Change Proposal (ECP) #1	4	2025	4	2025

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S58 / <i>Soldier Enhancement Program</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S58: <i>Soldier Enhancement Program</i>	-	8.989	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.989
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Soldier Enhancement Program (SEP) was established in the Fiscal Year (FY) 1990 National Defense Authorization Act (NDAA). SEP provides an innovative rapid approach that includes procurement and evaluation of Commercial Off the Shelf (COTS)/Non Developmental Item (NDI)/Government Off the Shelf (GOTS) items that have the potential to enhance an Army Infantryman and Soldiers' ability to execute their combat mission. SEP provides significant savings and acceleration in the evaluation of items. The SEP program is managed jointly by Program Executive Office (PEO) Soldier and the Maneuver Center of Excellence. SEP suggestions are submitted by individual Soldiers, Field Commanders, commercial manufacturers, and others via the Program Executive Office (PEO) Soldier SEP website. Viable suggestions are vetted by a Council of Colonels (CoC) and validated as SEP initiatives by Department of the Army, Deputy Chief of Staff, G8, Force Development. A limited number of validated SEP initiatives are procured and evaluated by Soldiers for feasibility and suitability. Based on the evaluation findings, the SEP CoC provides one or more of the following courses of action: (1) inform deliberate or urgent/emerging requirements generation, (2) initiate a new Program of Record (POR), (3) improve an existing POR, (4) transition to the Rapid Equipping Force or (5) add to the Rapid Fielding Initiative list, (6) provide a national stock number (NSN) for unit procurement or (7) the item did not meet objectives and no further action is necessary.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> SEP Evaluations	8.473	-	-	-	-
<b>Description:</b> Procure and evaluate COTS/GOTS/NDI items that have the potential to enhance Soldier combat effectiveness.					
<b>Title:</b> System Engineering/Program Management	0.516	-	-	-	-
<b>Description:</b> Systems Engineering and Program Management.					
<b>Accomplishments/Planned Programs Subtotals</b>	8.989	-	-	-	-

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MA6800: <i>Soldier Enhancement</i>	1.103	-	0.000	-	0.000	-	-	-	-	0.000	1.103
• E99105: <i>Soldier Enhancement Program Ammo</i>	0.253	-	0.000	-	0.000	-	-	-	-	0.000	0.253

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S58 / <i>Soldier Enhancement Program</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• GC0076: <i>Small Arms Equipment (Soldier Enh Prog)</i>	1.640	-	0.000	-	0.000	-	-	-	-	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

SEP focuses on COTS/GOTS/NDI initiatives submitted by Soldiers and industry. SEP proposals are reviewed and approved semiannually. Procurement funds SEP COTS/GOTS/NDI items in quantities sufficient for Soldier evaluation. Research, Development, Test and Evaluation is used to conduct product evaluations which includes safety testing, data collection, analysis of Soldier feedback/results and documentation of results. Product Managers responsible for portfolio in which the SEP initiative falls develops the procurement and evaluation strategy and procures the items using a variety of means from Government purchase card to full contracts. Soldiers evaluations are performed by various means from Battle Lab surveys to full scale Army Test and Evaluation testing depending on the item.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S58 / <i>Soldier Enhancement Program</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	MIPR	PEO Soldier : Ft. Belvoir, VA	14.309	0.516	Dec 2018	-		-		-		-	0.000	14.825	-
<b>Subtotal</b>			14.309	0.516		-		-		-		-	0.000	14.825	N/A

**Remarks**  
Systems Engineering and Program Management includes engineering support, conducting technical evaluations, market research and program reviews.

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	MIPR	Various : Various	39.573	-		-		-		-		-	0.000	39.573	-
<b>Subtotal</b>			39.573	-		-		-		-		-	0.000	39.573	N/A

**Remarks**  
Candidates for the Soldier Enhancement Program are received, reviewed, and approved semi-annually. Contractual efforts are focused on procuring prototypes for testing.

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	MIPR	PEO Soldier : Ft. Belvoir, VA	6.424	-		-		-		-		-	0.000	6.424	-
<b>Subtotal</b>			6.424	-		-		-		-		-	0.000	6.424	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	MIPR	Various : Various	49.060	8.473	Jan 2019	-		-		-		-	0.000	57.533	-
<b>Subtotal</b>			49.060	8.473		-		-		-		-	0.000	57.533	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S58 / <i>Soldier Enhancement Program</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 Initiatives 1-2Q FY19	[Redacted]																											
SEP Council of Colonel approval/prioritization process 2Q FY19	Test approved proposals																											
Evaluate Initiatives 3-4Q FY19	[Redacted]																											
SEP Council of Colonel approval/prioritization process 4QFY19																									Test approved proposals			

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**Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S58 / <i>Soldier Enhancement Program</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate Initiatives 1-2Q FY19	1	2019	2	2019
SEP Council of Colonel approval/prioritization process 2Q FY19	2	2019	2	2019
Evaluate Initiatives 3-4Q FY19	3	2019	4	2019
SEP Council of Colonel approval/prioritization process 4QFY19	4	2019	4	2019

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> S60 / <i>Clothing &amp; Equipment</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
S60: <i>Clothing &amp; Equipment</i>	-	8.152	6.453	6.717	-	6.717	5.010	4.846	3.697	6.814	0.000	41.689
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. It supports engineering and manufacturing development tasks related to individual clothing and equipment with the goal of enhancing the lethality, survivability, and mobility as well as the quality of life of the individual Soldier. It funds formal Developmental Testing/Operational Testing of preproduction and production representative systems leveraging advancements in materials, fabrication techniques, moisture management, flame resistant, insect protection, extreme environmental protection and camouflage, to include evaluation, test, and conduct of Soldier evaluations of Organizational Clothing and Individual Equipment appropriate for use in extreme or multi-climate environments; not to be precluded other climates and environments. Goal is to increase the capabilities and durability of tactical and non-tactical clothing and individual equipment. Includes integration and interface on the Soldier system. 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 increase commonality.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Soldier Uniforms and Clothing	4.522	5.016	3.632	-	3.632
<b>Description:</b> Evaluate superior and sustainable integrated clothing for the Soldier in a rapidly changing global environment.					
<b>FY 2020 Plans:</b> Continue fabric and Flame Resistant upgrades that support improved protection against insects and flame while increasing moisture management, signature management, breathability, and durability for tactical clothing. Continue Clothing Bag upgrades and evaluations. Conduct Modular Cold/Extreme Glove System MS C. Conduct sizing and body scanning study. Cold Weather Combat boot source selection verification testing.					
<b>FY 2021 Base Plans:</b> Continue fabric and Flame Resistant upgrades. Continue Clothing Bag Upgrades and Evaluations. Conduct ensemble level evaluations of novel materials and fabrics in clothing and equipment in all climates. Continue user evaluations of modernized Cold Weather clothing items and fabrics that support improved protection against extreme cold weather. Continue design considerations for female garments, items such as sports bra, maternity uniforms, A2CU female, etc. Continue athletic shoe certification efforts.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S60 / <i>Clothing &amp; Equipment</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Funding increase from FY 2020 to FY 2021 is due to anticipated requirements changes.					
<b>Title:</b> Individual Equipment <b>Description:</b> Develop and provide superior and sustainable integrated individual equipment for the Soldier in a rapidly changing global environment. <b>FY 2020 Plans:</b> Continue on-the-move Hydration Operational Life Testing (TIC/TIM/Desalinization). Complete development of increased capacity Multi-Purpose Hydration System (MPHS). Begin testing on Cold Weather Mobility items (i.e. skis, accessories, snow shoes, etc.). The parachutist flotation device MS C is schedule for 2nd quarter of FY 2020. Conduct testing for the Law Enforcement Ensemble Kit (LEEK). <b>FY 2021 Base Plans:</b> Procure sufficient Individual Water Treatment Device (IWTD) quantities to complete large scale Operational Test (OT). Complete evaluation of the USMC water hydration system, evaluate it to determine applicability to Army requirements in support of cross-service initiatives to improve commonality. Begin testing on Cold Weather Mobility items. Complete redesign of load carriage equipment in support of weapon modernization. Continue testing of load carriage equipment to address interoperability with improved Army capabilities. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding increase from FY 2020 to FY 2021 is due to large scale IWTD OT.	3.630	1.144	3.085	-	3.085
<b>Title:</b> FY 2020 SBIR/STTR Transfer <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638	-	0.293	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	8.152	6.453	6.717	-	6.717

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• S53: <i>Clothing And Equipment</i>	1.765	6.466	1.808	-	1.808	2.414	4.474	5.073	8.726	Continuing	Continuing

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S60 / <i>Clothing &amp; Equipment</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

**D. Acquisition Strategy**

Acquisition strategies for these programs vary in methods, and range from: 1) Materiel Change Proposals that result in engineering changes to existing systems to; 2) Traditional development programs that include an Engineering and Manufacturing Development phase ranging in duration from 12 to 48 months, depending on the level of complexity and testing required.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604601A / Infantry Support Weapons				S60 / Clothing & Equipment							
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 : Ft Belvoir	10.405	0.718		0.768		0.862		-		0.862	Continuing	Continuing	Continuing
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.293		-		-		-	0.000	0.293	-
<b>Subtotal</b>			10.405	0.718		1.061		0.862		-		0.862	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Various	NSRDEC : Natick, MA	16.785	-		0.531		0.614		-		0.614	Continuing	Continuing	Continuing
Development Contracts	Various	Various : Various	48.636	2.890		2.625		2.790		-		2.790	Continuing	Continuing	Continuing
FY 2019 SBIR / STTR Transfer/FFRDC	TBD	TBD : TBD	-	0.203		-		-		-		-	0.000	0.203	-
<b>Subtotal</b>			65.421	3.093		3.156		3.404		-		3.404	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Office Support Costs	Various	Natick, MA : Natick, MA	16.886	1.620		0.417		0.495		-		0.495	Continuing	Continuing	Continuing
<b>Subtotal</b>			16.886	1.620		0.417		0.495		-		0.495	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Various : Various	28.201	2.721		1.819		1.956		-		1.956	Continuing	Continuing	Continuing
<b>Subtotal</b>			28.201	2.721		1.819		1.956		-		1.956	Continuing	Continuing	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S60 / <i>Clothing &amp; Equipment</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>UNIFORM CLOTHING</b>																												
Cold Weather Boot Milestone C	▲ 1																											
Continue Fabric & FR Upgrades																												
Clothing Bag Upgrades and Evaluations																												
Develop Improved Hot Weather Combat Uniform - Female (IHWCU-F)																												
Develop Extreme Cold Weather Boot																												
Continue Upgrades for Extreme Cold Weather Protections																												
Evaluate Cold Weather Glove System																												
Modular Cold/Extreme Cold Glove Sys Milestone C					▲ 2																							
Cold Weather Mobility Testing																												
FR Next Gen Materials Testing																												
Cold/Extreme Cold Weather System Milestone C																					▲ 5							
<b>INDIVIDUAL EQUIPMENT</b>																												

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S60 / <i>Clothing &amp; Equipment</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025							
	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				
On-the-Move Hydration Operational Life Testing (TIC/TIM/Desalination)																																
Tactical Holster Testing (final solution)																																
Law Enforcement Ensemble Kit (LEEK) Development																																
LEEK Milestone C																																
Evaluate of Cold Weather Mobility items																																
Imporved Ghillie Suit Milestone C																																
Evaluate Cold Weather Canteen																																
Individual Water Treatment Device (IWTD) OT																																
Testing Load Carriage Equipment Interoperability																																
Athletic Shoe Certification																																

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S60 / <i>Clothing &amp; Equipment</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UNIFORM CLOTHING	1	2011	4	2025
Cold Weather Boot Milestone C	3	2019	3	2019
Continue Fabric & FR Upgrades	3	2009	4	2025
Clothing Bag Upgrades and Evaluations	1	2013	4	2025
Develop Improved Hot Weather Combat Uniform - Female (IHWCU-F)	1	2020	4	2020
Develop Extreme Cold Weather Boot	1	2020	4	2023
Continue Upgrades for Extreme Cold Weather Protections	1	2020	4	2025
Evaluate Cold Weather Glove System	1	2020	3	2020
Modular Cold/Extreme Cold Glove Sys Milestone C	3	2020	3	2020
Cold Weather Mobility Testing	1	2021	4	2023
FR Next Gen Materials Testing	3	2020	4	2025
Cold/Extreme Cold Weather System Milestone C	4	2025	4	2025
INDIVIDUAL EQUIPMENT	2	2008	4	2025
On-the-Move Hydration Operational Life Testing (TIC/TIM/Desalinization)	2	2021	4	2023
Tactical Holster Testing (final solution)	2	2018	4	2021
Law Enforcement Ensemble Kit (LEEK) Development	1	2020	2	2020
LEEK Milestone C	3	2020	3	2020
Evaluate of Cold Weather Mobility items	2	2021	3	2023
Imporved Ghillie Suit Milestone C	1	2022	1	2022
Evaluate Cold Weather Canteen	1	2021	4	2021
Individual Water Treatment Device (IWTD) OT	1	2021	4	2021
Testing Load Carriage Equipment Interoperability	1	2021	4	2021
Athletic Shoe Certification	1	2022	4	2026

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
S61: <i>Acis Engineering Development</i>	-	3.492	2.988	1.857	-	1.857	2.768	2.372	1.449	0.463	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project conducts development, integration, and qualification activities in support of the Air Soldier System (Air SS). The Air SS is Army aircrew survival and mission equipment that improves safety, survivability, and human performance. The Air SS Capability Production Document (CPD) addresses capability gaps identified during combat operations in Iraq and Afghanistan including crew station compatibility challenges caused by equipment bulk, aircraft mishaps as a result of limited Situational Awareness (SA), and lack of functionally integrated aircrew mission and survival equipment. Air SS delivers reduced bulk and weight of survival equipment; improved crew station compatibility; and improved pilot SA and safety. The Air SS provides enhanced terrain, threat, and obstacle avoidance information; improved heads-up display (HUD) technologies that increase the aviator's SA; the capability to perform extended missions in extreme environmental and chemical/biological threat conditions; the capability to digitally replace paper-based DoD Flight Information Publications (Electronic Flight Bag); develops and tests a modernized replacement for the Air Warrior survival vest that integrates with the Soldier Protection System body armor (Aircrew Combat Equipment); and develops and tests aircrew helmet ballistic protection.

This project also funds the development and test of deferred Capability Development Document (CDD) capabilities including implementation of a next generation visor projected HUD, implementation of tactical cueing and/or 3D audio capabilities aimed at further reduction of pilot workload and increased SA. This program does not duplicate any aircraft platform program efforts. Includes integration and interface of products on Soldiers.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Air Soldier System	3.215	2.852	1.857	-	1.857
<b>Description:</b> This project conducts development, integration and qualification activities in support of the Air Soldier System (Air SS) program. The Air SS addresses capability gaps identified during combat operations in Iraq and Afghanistan. Including crew station compatibility challenges caused by the burden of excessive equipment bulk and weight; impacts to safety resulting from excessive pilot workload and limited aircrew situational awareness (SA); and inadequate aircrew protection from environmental extremes, hostile threats, and induced threats resulting from aircraft mishaps or crashes.					
<b>FY 2020 Plans:</b> Funds will be used to conduct Windows 10 qualification test for the Electronic Data Manager, developmental and operational test of Aircrew Combat Equipment, and operational test of the Common Helmet Mounted Display.					
<b>FY 2021 Base Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p>Completes Operational Testing of fully integrated Aircrew Combat Equipment (ACE) vest on each Army rotary wing platform to inform a production decision for FY 2022. Begins evaluation, development, and testing of candidate technologies for an improved laser eye protection (LEP) solution providing protection better aligned with today's threat. Future focus (beyond FY 2021) is on additional deferred capabilities including, but not limited to, development and testing of an obsolescence replacement for the Encrypted Aircraft Wireless Intercom System (EAWIS) leveraging Voice over Internet Protocol (VoIP) or ultra-wideband (UWB) technologies, and development and testing of aircrew helmet ballistic protection.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 funding decreases due to re-phasing of Laser Eye Protection Phase II into FY 2022, and re-phasing Next Generation EAWIS development program from FY 2021 to FY 2022. Re-phasing of these efforts was necessary after ACE Developmental Testing was extended and Operational Testing was delayed to incorporate the Modular Scalable Vest (MSV) body armor into the design in order to further reduce weight and bulk and achieve commonality and convergence with the Soldier Ground portfolio.</p>					
<p><b>Title:</b> FY 2019 Rescission</p> <p><b>Description:</b> Rescission Infantry support weapons - S62 counter-defilade target engagement</p>	0.277	-	-	-	-
<p><b>Title:</b> FY 2020 SBIR/STTR Transfer</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC ?638</p> <p><b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638</p>	-	0.136	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	3.492	2.988	1.857	-	1.857

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• AZ3110: <i>Aircrew Integrated Systems</i>	27.243	48.255	48.265	3.028	51.293	43.124	28.666	24.814	14.042	0.000	237.437

**Remarks**

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Army Date: February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>
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**D. Acquisition Strategy**

Air Soldier System Milestone C was conducted in April 2019 for initial capabilities to include: Aircraft-mounted hardware and helmet worn displays that provide integrated helmet capabilities and increase aircrew situational awareness; and, Protective and Survival Soldier Kit items that reduce equipment weight and bulk and improve aircrew mission effectiveness and survivability. Air SS capabilities are being phased into production over time. Efforts for the Air SS program include development, integration, test, and airworthiness qualification of aviator flight display symbology technologies that will increase crew member situational awareness, and aircrew protective and survival equipment that reduces bulk and weight and improves crew station compatibility and mission effectiveness. Air SS includes improvements to the current flight helmet; improvements to the survival gear carriage system; lightweight body armor; environmental protective clothing and personal survival equipment; and a day/night helmet-mounted flight symbology display for UH-60 and CH-47 aviators. Efforts continue to develop deferred capabilities as defined within the Capability Development Document (CDD) to include Common Operating Environment modernization initiatives and enhanced laser eye protection.

Development efforts are conducted using a mix of both Cost and Firm Fixed Price Contracts with industry utilizing full and open competition. Each development effort is individually evaluated and the appropriate contract type is selected in order to appropriately share risk between industry and the government. Risk reduction, developmental, and operational testing are conducted utilizing Reimbursable orders placed with Other Government Agencies under either Project Order Law, Title 41, United States Code, section 6307 or the Economy Act, Title 31, United States Code, section 1535.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604601A / Infantry Support Weapons				S61 / Acis Engineering Development								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
PM Administration	Allot	Various Government : Huntsville, Alabama	3.997	0.199		0.163		0.050		-		0.050	Continuing	Continuing	Continuing	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.136		-		-		-	0.000	0.136	-	
<b>Subtotal</b>			3.997	0.199		0.299		0.050		-		0.050	Continuing	Continuing	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Air Warrior and Air Soldier System Development	C/CPFF	Various Government : Various Locations	62.290	1.286		0.691		0.750		-		0.750	Continuing	Continuing	Continuing	
<b>Subtotal</b>			62.290	1.286		0.691		0.750		-		0.750	Continuing	Continuing	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Matrix Support	RO	Various Government : Various Locations	4.399	0.055		0.021		0.057		-		0.057	Continuing	Continuing	Continuing	
<b>Subtotal</b>			4.399	0.055		0.021		0.057		-		0.057	Continuing	Continuing	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 and Operational Testing	RO	Various Activities : Various Locations	15.327	1.952		1.977		1.000		-		1.000	Continuing	Continuing	Continuing	
<b>Subtotal</b>			15.327	1.952		1.977		1.000		-		1.000	Continuing	Continuing	N/A	

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>
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	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	86.013	3.492	2.988	1.857	-	1.857	Continuing	Continuing	N/A

**Remarks**  
 FY 2019 R-2A Project Funding Total of \$3,491 reflects revised funding after FFRDC/SBIR Title 15 USC 638(f)(1) adjustments.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Air SS Full Rate Production (FRP) Decision			▲ FRP																									
Air SS Pre-planned Product Improv (P3I) Phase																												
Electronic Flight Bag (EFB) Integration & Qualification																												
EFB Production Decision				■																								
Aircrew Combat Equipment (ACE) Integration and Qualification																												
ACE Developmental Test/Operational Test (DT/OT)																												
ACE Production Decision											■																	
Deferred Air SS Capabilities Develop & Qual																												
Laser Eye Protection (LEP) Integration & Qualification																												
LEP DT & OT																												
LEP Production Decision																			■									
Next Gen EAWIS Integration & Qualification																												
Next Gen EAWIS DT & OT																												

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Next Gen EAWIS Production Decision																												
Visor Projected Heads Up Display (VPHUD) Integration & Qualification																												
VPHUD DT & OT																												

DT & OT

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S61 / <i>Acis Engineering Development</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Air SS Full Rate Production (FRP) Decision	3	2019	3	2019
Air SS Pre-planned Product Improv (P3I) Phase	1	2016	4	2024
Electronic Flight Bag (EFB) Integration & Qualification	1	2017	4	2019
EFB Production Decision	4	2019	4	2019
Aircrew Combat Equipment (ACE) Integration and Qualification	1	2017	2	2020
ACE Developmental Test/Operational Test (DT/OT)	2	2020	2	2021
ACE Production Decision	2	2021	3	2021
Deferred Air SS Capabilities Develop & Qual	1	2019	4	2025
Laser Eye Protection (LEP) Integration & Qualification	3	2021	3	2022
LEP DT & OT	3	2022	4	2022
LEP Production Decision	1	2023	1	2023
Next Gen EAWIS Integration & Qualification	2	2022	4	2023
Next Gen EAWIS DT & OT	4	2023	4	2023
Next Gen EAWIS Production Decision	1	2024	1	2024
Visor Projected Heads Up Display (VPHUD) Integration & Qualification	1	2024	4	2025
VPHUD DT & OT	1	2025	4	2026
Aircrew Ballistic Helmet Development, Integration & Qualification	1	2027	4	2027

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> <i>S62 / Counter-Defilade Target Engagement - SDD</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>S62: Counter-Defilade Target Engagement - SDD</i>	-	0.330	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.330
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**A. Mission Description and Budget Item Justification**

The Maneuver Center of Excellence (MCoE), FT Benning, GA (User Community) identifies the Counter Defilade Target Engagement (CDTE) as a critical capability gap for our Soldiers in combat and Soldier Lethality CFT has assumed this need as a task. A Next Generation Counter Defilade Weapon to mitigate the critical capability gap (defeating defilade (hidden) targets from 35-500m) is required. The Next Generation Counter Defilade Weapon will provide the Infantry Soldier with a leap-ahead overmatch capability that allows the Soldier to engage defilade targets with a high degree of accuracy while posing minimal burden, in terms of weight and size. The system will integrate a weapon, ammunition, and a target acquisition/fire control subsystem that integrates thermal capability with direct-view optics, laser rangefinder, environmental sensors, ballistic computer, and internal display.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> Support Next Generation Counter Defilade Weapon Requirements Development	0.313	-	-	-	-
<b>Description:</b> Support Next Generation Counter Defilade Weapon Requirements Development					
<b>Title:</b> FY 2019 Rescission	0.017	-	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	0.330	-	-	-	-

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

Utilize existing hardware to conduct user requested demonstrations and analyses that will be used to inform counter defilade requirements. As counter defilade requirements are finalized for the Next Generation Counter Defilade Weapon, acquisition approaches will be explored and selected in order to provide this capability to the user.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2021 Army</b>											<b>Date:</b> February 2020				
<b>Appropriation/Budget Activity</b> 2040 / 5						<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>					<b>Project (Number/Name)</b> S62 / <i>Counter-Defilade Target Engagement - SDD</i>				

<b>Management Services (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Program Management	Various	Performed by Government : Various Activities	4.908	0.110	Mar 2019	-		-		-		-	0.000	5.018	-
Contract Management Services	MIPR	ACC-APG : Aberdeen	0.146	-		-		-		-		-	0.000	0.146	-
FY2019 SBIR / STTR Transfer	FFRDC	Army Budget Office : Pentagon, Washington DC	-	0.064	Nov 2018	-		-		-		-	0.000	0.064	-
FY 2019 Rescission	TBD	Army Budget Office : Pentagon	-	0.017		-		-		-		-	0.000	0.017	-
<b>Subtotal</b>			5.054	0.191		-		-		-		-	0.000	5.245	N/A

**Remarks**  
Program is under review by the Army Acquisition Executive (AAE) for a path forward.

<b>Product Development (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Contract Termination Costs	SS/BA	ATK : Plymouth, MN	135.840	-		-		-		-		-	0.000	135.840	-
<b>Subtotal</b>			135.840	-		-		-		-		-	0.000	135.840	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Contractor Support	Option/ FFP	Various : PMSW, Picatinny Arsenal. NJ	0.620	-		-		-		-		-	0.000	0.620	-
Training Development Support	MIPR	TACOM/PEO STRI : TACOM/PEO STRI	0.993	-		-		-		-		-	0.000	0.993	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604601A / Infantry Support Weapons				S62 / Counter-Defilade Target Engagement - SDD							
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Government : Various	8.912	-		-		-		-		-	0.000	8.912	-
<b>Subtotal</b>			10.525	-		-		-		-		-	0.000	10.525	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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/System Tests and Articles	SS/CPFF	Performed by Contractor : ATK, Plymouth, MN	19.604	-		-		-		-		-	0.000	19.604	-
Developmental/Operational Tests	Various	Performed by Government : Various Activities	15.445	0.139	Mar 2019	-		-		-		-	0.000	15.584	-
<b>Subtotal</b>			35.049	0.139		-		-		-		-	0.000	35.188	N/A
<b>Project Cost Totals</b>			186.468	0.330		0.000		-		-		-	0.000	186.798	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S62 / <i>Counter-Defilade Target Engagement - SDD</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Design, Develop, Engineer, Test & Manage Improvements	█				█																							
Production Qualification Test (PQT)	█																											
Live Fire Test & Evaluation (LFT&E)	█																											
Initial Operational Test & Evaluation (IOT&E)			█																									
Natural Environments/Airborne LUT			█																									
Type Classification - Standard													▲ 1															
Full Rate Production (FRP)													■															
Design, Develop & Fabricate Support Requirements Develop	█																											
Engineering Support	█																											
Test and Evaluation	█																											
Program Management FY19	█																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S62 / <i>Counter-Defilade Target Engagement - SDD</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MS B	1	2011	1	2011
Design, Develop & Fabricate	1	2011	4	2017
Engineering and Training Development	1	2011	4	2017
Development Tests & Evaluation	1	2011	4	2017
Program Management	1	2011	4	2018
Design, Develop, Engineer, Test & Manage Improvements	4	2018	4	2019
Pre-Production Qualification Testing (PPQT #2)	4	2016	2	2017
Limited User Testing (LUT)	2	2017	2	2017
MS C/Type Classification-Limited Procurement	2	2017	2	2017
Low Rate Initial Production (LRIP)-IOT&E	3	2017	4	2017
Production Qualification Test (PQT)	3	2018	1	2019
Live Fire Test & Evaluation (LFT&E)	1	2019	2	2019
Initial Operational Test & Evaluation (IOT&E)	3	2019	1	2020
Natural Environments/Airborne LUT	2	2019	1	2020
Type Classification - Standard	2	2020	2	2020
Full Rate Production (FRP)	2	2020	3	2020
Design, Develop & Fabricate Support Requirements Development	1	2019	4	2019
Engineering Support	1	2019	4	2019
Test and Evaluation	1	2019	4	2019
Program Management FY19	1	2019	4	2019

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
S63: <i>Individual Weapons Engineering Development</i>	-	12.454	2.697	4.374	-	4.374	4.214	4.280	4.270	4.216	0.000	36.505
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Individual Weapons Engineering Development program provides funds to transition components or prototypes from Budget Activity 4 (BA 4) Element (PE) 0603827A Soldier Systems - Advanced Development Project S54 Small Arms Improvement Program and other domestic and foreign sources of small arms weapon systems to demonstrate, test and evaluate capability near or at planned operational requirements. The Maneuver Center of Excellence (MCoE), Fort Benning, GA (User Community) identifies the Individual Weapons Engineering Development as a critical capability gap for our Soldiers in combat and Soldier Lethality Cross Functional Team (CFT) has assumed this need as a task. Small arms systems include weapons up to 40 millimeter (mm) in caliber. Current and future efforts focus on system improvements designed to enhance lethality, target acquisition, 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 system development, integration (to include human-systems), demonstration, test and evaluate components, prototypes and operational system prototypes of small arms weapon systems and/or enhancements. Benefits include continuous improvements to small arms weapon systems, fire control equipment, optics, gun barrels, ancillary equipment, training devices, component mounts, weapon mounts, and weapon/ammunition interface of current small arms fleet or new weapon systems.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> New Weapon Systems	10.905	-	3.524	-	3.524
<b>Description:</b> Development of new weapon systems					
<b>FY 2021 Base Plans:</b> Next Generation Defeat: Will continue to design, develop, and prototype fabrication of advanced technologies to incorporate into Soldier employable system that will be capable of on-target effects against multiple types of targets (i.e. targets behind cover, targets that are exposed, thin skin vehicles, unmanned aerial systems)					
Sub-Compact Weapon (SCW): Continue to complete documentation, production qualification, safety and other test efforts required for Type-Classification and Full Material Release (TC-FMR)					
Weapon System Upgrades and Accessories: Will continue to test, evaluate, and analyze ongoing and new activities for small arms weapon systems and accessories to facilitate rapid acquisition of increased capabilities.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
FY 2021 Increase in funds to support Next Generation Defeat and to complete Sub-Compact Weapon (SCW).					
<b>Title:</b> Small Arms Weapon Systems Enhancements <b>Description:</b> Enhancements and development of small arms weapon systems <b>FY 2020 Plans:</b> Current and Legacy Weapon Improvements: Assessed and evaluated selected capabilities and improvements for all current and legacy weapon systems.  Small Business Innovation Research (SBIR) Enhancements: Continued to support Phase II Enhancement and/or initialization of Phase III SBIR activities. <b>FY 2021 Base Plans:</b> New Weapon Evaluation and Assessment: Will continue to focus on evaluation of current state-of-the-art technologies and integration of those technologies for individual weapons across the spectrum of small arms from pistols through rifles. Evaluation will focus on terminal effects and those technologies utilized to achieve those on-target effects.  Small Business Innovation Research (SBIR): Will continue to support Phase II Enhancement and/or initialize Phase III SBIR activities.  Weapon Systems and Accessories Enhancements: Will continue to test, evaluate, and analyze ongoing and new activities to enhance small arms weapon systems and accessories. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 Decrease as Adaptive Lubricious Coatings achieves desired results for individual weapons (IW) and continues test and evaluation efforts as Protective Coatings for Crew Served Weapon systems.	0.570	2.454	0.700	-	0.700
<b>Title:</b> Ammunition <b>Description:</b> Improvement of small arms ammunition <b>FY 2020 Plans:</b> Ammunition Upgrades: Evaluated the effect of new ammunition on small arms weapon systems. <b>FY 2021 Base Plans:</b>	0.049	0.050	0.050	-	0.050

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Ammunition Upgrades: Will continue evaluations of new ammunition effects on small arms weapons.					
<b>Title:</b> Combat Optics <b>Description:</b> Improvement of combat optics <b>FY 2020 Plans:</b> Next Generation Optics: Continued to perform engineering, evaluations, verification and validation of weapon optics and electro-optic capabilities and improvements. <b>FY 2021 Base Plans:</b> Next Generation Optics: Will continue to perform engineering evaluations, verification and validation of weapon optics performance requirements. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2021 Decrease as less funds are required for optics engineering support.	0.010	0.020	0.050	-	0.050
<b>Title:</b> Research and Analysis <b>Description:</b> Market Research and Cost Benefit Analysis <b>FY 2020 Plans:</b> Continued Market Research and Cost Benefit Analysis of new small arms weapon systems and/or enhancements for engineering and manufacturing development. <b>FY 2021 Base Plans:</b> Will continue Market Research and Cost Benefit Analysis of new small arms weapons and/or enhancements. Continue research & analysis of mature technologies will inform engineering and manufacturing development required to facilitate rapid acquisition of increased capabilities where applicable.	0.010	0.050	0.050	-	0.050
<b>Title:</b> FY 2019 Rescission	0.910	-	-	-	-
<b>Title:</b> FY 2020 SBIR/STTR Transfer <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>	-	0.123	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Funding transferred in accordance with Title 15 USC 7638					
<b>Accomplishments/Planned Programs Subtotals</b>	12.454	2.697	4.374	-	4.374

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• S54: <i>Small Arms Improvement</i>	7.395	14.555	16.082	-	16.082	19.213	17.423	10.477	10.583	0.000	95.728
• G01507: <i>COMPACT SEMI-AUTOMATIC SNIPER SYSTEM</i>	46.236	9.860	0.999	-	0.999	-	-	-	-	0.000	57.095
• G13503: <i>M4A1 CARBINE</i>	69.606	31.514	7.411	-	7.411	4.341	-	-	-	0.000	112.872
• GB3007: <i>M4 Carbine Mods</i>	38.075	17.595	4.824	-	4.824	4.899	4.404	4.405	-	Continuing	Continuing
• G01501: <i>XM320 Grenade Launcher Module (GLM)</i>	18.197	0.717	5.969	-	5.969	9.907	11.872	14.441	17.982	Continuing	Continuing
• G15325: <i>Handgun</i>	48.251	6.422	4.662	-	4.662	5.126	-	-	-	Continuing	Continuing
• GL3200: <i>Items Less Than \$5.0m (WOCV-WTCV)</i>	4.571	3.066	2.763	-	2.763	2.866	2.974	3.171	3.196	Continuing	Continuing
• GC0925: <i>Modifications Less Than \$5.0m (WOCV-WTCV)</i>	6.362	4.327	2.604	-	2.604	2.360	2.336	2.713	3.608	Continuing	Continuing

**Remarks**  
 In support of Small Arms Requirements, components or prototypes developed in BA 4 PE 0603827A Soldier Systems - Advanced Development Project S54 Small Arms Improvement Program is transitioned to BA 5 PE 0604601A Infantry Support Weapons Project S63 Individual Weapons Engineering Development to conduct engineering and manufacturing development. Once the component, prototype or operational prototype achieves Milestone C and type classification the item transitions to small arms weapon systems production or modification program.

**D. Acquisition Strategy**  
 Primary strategy is to mature and finalize design efforts, award Research, Development, Test and Evaluation (RDT&E) Defense Ordnance Technology Consortium (DOTC) and Other Transaction Authority (OTA) type hardware contracts. Test and evaluate systems that result in type classification, material release, and follow-on production contract awards.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>
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<b>Management Services (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Program Management	Allot	PM Soldier Weapons, : Picatinny Arsenal	10.131	0.400	Mar 2019	0.035	Mar 2020	0.050	Mar 2021	-		0.050	Continuing	Continuing	Continuing
Travel	MIPR	PM Soldier Weapons, : Picatinny Arsenal	1.424	0.113	Mar 2019	0.047	Mar 2020	0.062	Mar 2021	-		0.062	Continuing	Continuing	Continuing
FY2019 SBIR / STTR Transfer	FFRDC	Army Budget Office : Pentagon, Washington DC	-	0.211	Nov 2018	-		-		-		-	Continuing	Continuing	Continuing
FY 2019 Rescission	TBD	Army Budget Office : Pentagon	-	0.910		-		-		-		-	0.000	0.910	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.123		-		-		-	0.000	0.123	-
<b>Subtotal</b>			11.555	1.634		0.205		0.112		-		0.112	Continuing	Continuing	N/A

<b>Product Development (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Fabrication	Various	Various : Multiple Contractors	3.700	0.420	Mar 2019	-		1.300	Apr 2021	-		1.300	Continuing	Continuing	Continuing
Hardware Development	MIPR	Army Research Development Engineering Centers, : Multiple	8.100	9.140	Mar 2019	-		1.300	Apr 2021	-		1.300	Continuing	Continuing	Continuing
<b>Subtotal</b>			11.800	9.560		-		2.600		-		2.600	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604601A / Infantry Support Weapons				Project (Number/Name) S63 / Individual Weapons Engineering Development							
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	67.621	0.400	Mar 2019	0.261	Mar 2020	0.400	Mar 2021	-		0.400	Continuing	Continuing	Continuing
Logistics	MIPR	TACOM, : Warren	4.970	0.100	Mar 2019	0.108	Mar 2020	0.125	Mar 2021	-		0.125	Continuing	Continuing	Continuing
Human Research and Engineering	MIPR	Army Research Laboratory, : Aberdeen Proving Ground	3.845	0.150	Mar 2019	0.108	Mar 2020	0.125	Mar 2021	-		0.125	Continuing	Continuing	Continuing
<b>Subtotal</b>			76.436	0.650		0.477		0.650		-		0.650	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Developmental Test Command, : Aberdeen Proving Ground	26.329	0.250	Mar 2019	0.685	Mar 2020	0.360	Mar 2021	-		0.360	Continuing	Continuing	Continuing
Operational Testing	MIPR	Army Test and Evaluation Command, : Aberdeen Proving Ground	16.750	0.250	Mar 2019	0.995	Mar 2020	0.350	Mar 2021	-		0.350	Continuing	Continuing	Continuing
Validation Testing	MIPR	Army Test and Evaluation Centers, : Multiple	9.862	0.110	Mar 2019	0.335	Mar 2020	0.302	Mar 2021	-		0.302	Continuing	Continuing	Continuing
<b>Subtotal</b>			52.941	0.610		2.015		1.012		-		1.012	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			152.732	12.454		2.697		4.374		-		4.374	Continuing	Continuing	N/A



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>NEW WEAPON SYSTEMS</b>																												
Next Generation Airburst																												
Sub-Compact Weapons																												
Squad Designated Marksman Rifle (SDMR)																												
Weapon System Upgrades and Accessories																												
<b>SMALL ARMS WEAPON SYSTMS ENHANCEMENTS</b>																												
New Weapon Systems Evaluations and Assessments																												
Small Business Innovation Research (SBIR) Enhancements																												
Weapon Systems and Accessories Enhancements																												
Adaptive Lubricious Coatings																												
Current and Legacy Weapon Improvements																												
<b>AMMUNITION</b>																												
Ammunition Upgrades																												

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025											
	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								
<b>COMBAT OPTICS</b>																																				
Next Generation Optics																																				
Grenadier Sighting System (GSS) for the M320 Grenade Lau																																				
Rifle Combat Optic (RCO Technology Refresh																																				
Optics Upgrades																																				
<b>RESEARCH AND ANALYSIS</b>																																				
Research and Analysis of Small Arms																																				

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NEW WEAPON SYSTEMS	1	2007	4	2024
Next Generation Airburst	1	2020	4	2025
Sub-Compact Weapons	1	2018	4	2021
Squad Designated Marksman Rifle (SDMR)	1	2014	4	2019
Weapon System Upgrades and Accessories	1	2008	4	2025
Individual Carbine Competition	1	2010	4	2013
Modular Handgun System (MHS)	1	2012	4	2018
Precision Sniper Rifle (PSR)	1	2015	4	2016
SMALL ARMS WEAPON SYSTMS ENHANCEMENTS	1	2008	4	2024
New Weapon Systems Evaluations and Assessments	1	2018	4	2025
Small Business Innovation Research (SBIR) Enhancements	1	2017	4	2025
Weapon Systems and Accessories Enhancements	1	2017	4	2025
Compact Semi-Automatic Sniper System (CSASS)	1	2015	4	2016
Powered Rail now known as Intelligent Rail	1	2013	4	2016
Adaptive Lubricious Coatings	1	2018	4	2020
Current and Legacy Weapon Improvements	1	2020	4	2025
AMMUNITION	1	2008	4	2024
XM1112 40MM Airburst Non-Lethal Munitions	1	2010	4	2016
Ammunition Upgrades	1	2008	4	2025
COMBAT OPTICS	1	2008	4	2024
Next Generation Optics	1	2020	4	2025
Mounted Machine Gun Optics (MMO)	1	2015	4	2016

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S63 / <i>Individual Weapons Engineering Development</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Squad Fire Control Optic	1	2014	4	2015
Grenadier Sighting System (GSS) for the M320 Grenade Launcher	1	2009	4	2019
Rifle Combat Optic (RCO Technology Refresh	1	2017	4	2019
Intelligent Rail	1	2017	4	2018
Optics Upgrades	1	2018	4	2019
RESEARCH AND ANALYSIS	1	2012	4	2024
Research and Analysis of Small Arms	1	2015	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> S64 / <i>Common Remotely Operated Wpn Sys (CROWS)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
S64: <i>Common Remotely Operated Wpn Sys (CROWS)</i>	-	0.000	0.000	1.499	-	1.499	0.000	0.000	0.000	0.000	0.000	1.499
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Project S64 Common Remotely Operated Wpn Sys (CROWS) had a skip year of funding in Fiscal Year (FY) 2019 and was last funded in FY 2018. This program 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).

**A. Mission Description and Budget Item Justification**

The Maneuver Support Center of Excellence (MSCoE) at FT Leonard Wood, Missouri (user community) has identified continued development of the Common Remotely Operated Weapon Station (CROWS) as a critical improvement for the Soldier in a combat environment. By addressing the capability gap of non-turreted, lightly armored vehicles where the gunner is exposed to enemy fire, the current CROWS system provides the ability to rapidly and accurately locate and engage the enemy while allowing platform gunners to remain under armor, thereby providing greater protection and increasing overall lethality.

Next generation improvements will upgrade overall situational awareness, survivability and lethality. Requirements include improved sensor systems for enhanced identification ranges; wider fields of view; improved on-the-move accuracy; training capability; battlefield obscurants; mission data recording for After Action Reviews (AAR); increased lethality using legacy and future anti-personnel and anti-materiel precision scalable lethal and non-lethal weapon systems; improved ballistics protection; adaptability to integrate on a variety of legacy and future platforms including ground vehicles, watercraft, semi-autonomous and autonomous platforms; precision targeting including visible and infrared (IR) pointers; target hand-off; slew-to-cue; escalation of force (EOF) capabilities; and other additional system modifications and improvements.

Next generation requirements and modernization will address recommendations identified in the Operational Test Agency Milestone Assessment Report (OMAR) and user community feedback. These modifications include, but are not limited to: improved optics survivability; auto-zoom; improved auto-tracking; improved sensors for increased situational awareness; and improved rounds counter. Additionally, development efforts will include system and component level reliability improvements that will extend system life and reduce overall CROWS logistics footprint.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Contractor Development and Prototype Fabrication	-	-	0.050	-	0.050
<b>Description:</b> Contractor development of system improvements, modifications, and fabrication of prototypes.					
<b>FY 2021 Base Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S64 / <i>Common Remotely Operated Wpn Sys (CROWS)</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
Contractor will resume development of multiple system improvements and modifications to enhance situational awareness and lethality, escalation of force and non-lethal capabilities. These improvements will include a multi-user/multi-weapon capability, an embedded trainer to replace the current appended trainer device, and an enhanced, digital, high definition visual imaging module. These improvements will also include the integration of new weapons and other effectors and the development and modification for integration into new vehicles and other platforms.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase due to contractor development of system improvements and modifications.					
<b>Title:</b> Engineering Support					
<b>Description:</b> Government engineering support and technical oversight.					
<b>FY 2021 Base Plans:</b> Will provide government engineering support, technical oversight, and development of multiple system improvements and modifications to enhance situational awareness and lethality, escalation of force and non-lethal capabilities.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase in funding for government engineering support.					
	-	-	0.700	-	0.700
<b>Title:</b> Test and Evaluation					
<b>Description:</b> Testing and evaluation at government ranges and facilities.					
<b>FY 2021 Base Plans:</b> Will provide government testing and evaluation of system improvements and modifications to enhance situational awareness and lethality, escalation of force and non-lethal capabilities.					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase for government testing and evaluation of system improvements and modifications.					
	-	-	0.500	-	0.500
<b>Title:</b> Program Management					
<b>Description:</b> Program office management and oversight of government and contractor efforts.					
<b>FY 2021 Base Plans:</b>					
	-	-	0.249	-	0.249

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S64 / <i>Common Remotely Operated Wpn Sys (CROWS)</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Program office will provide oversight and management of contractor and government efforts for system improvements and modifications to enhance situational awareness and lethality, escalation of force and non-lethal capabilities.  <i><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></i> Increase in funding for program office management.					
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	1.499	-	1.499

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• G04700: <i>Common Remotely Operated Weapons Station</i>	21.604	28.189	24.534	-	24.534	-	-	-	-	0.000	74.327

**Remarks**

**D. Acquisition Strategy**

The program objective is to continue developing, improving and fielding the current generation (Increment I) and next generation (Increment II) of CROWS on various platforms in accordance with the Basis of Issue Plan (BOIP) utilizing Other Government Agencies (OGA) to complete efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604601A / Infantry Support Weapons				S64 / Common Remotely Operated Wpn Sys (CROWS)								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	MIPR	PM Soldier Weapons : Picatinny Arsenal, NJ	4.440	-		-		0.299	Oct 2019	-		0.299	0.000	4.739	-	
<b>Subtotal</b>			4.440	-		-		0.299		-		0.299	0.000	4.739	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Technology Refresh, Obsolescence and Increment II Enhancements	C/FFP	Kongsberg Protech Systems USA : Johnstown, PA	11.634	-		-		-		-		-	0.000	11.634	-	
Contractor Development and Prototype Fabrication	C/FFP	TBD : TBD	22.083	-		-		-		-		-	0.000	22.083	-	
<b>Subtotal</b>			33.717	-		-		-		-		-	0.000	33.717	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	ARDEC : Picatinny Arsenal, NJ	10.820	-		-		0.700	Oct 2019	-		0.700	0.000	11.520	-	
<b>Subtotal</b>			10.820	-		-		0.700		-		0.700	0.000	11.520	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Test Planning and Execution	MIPR	Multiple : Multiple	1.758	-		-		0.500	Dec 2019	-		0.500	0.000	2.258	-	



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S64 / <i>Common Remotely Operated Wpn Sys (CROWS)</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Contractor Design and Prototype Fabrication (II)																												
Engineering Support (II)																												
Test and Evaluation (II)																												
Program Management (II)																												
Engineering Support (Government II)																												
Test and Evaluation (Government II)																												
Program Management (Government II)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S64 / <i>Common Remotely Operated Wpn Sys (CROWS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Contractor Design and Prototype Fabrication	1	2016	4	2018
Engineering Support (Government)	3	2015	4	2018
Development Test & Evaluation	3	2015	4	2018
Program Management	3	2015	4	2018
Increment II Product Improvement	2	2017	4	2017
Contractor Design and Prototype Fabrication (II)	1	2020	4	2020
Engineering Support (II)	1	2020	4	2020
Test and Evaluation (II)	1	2020	4	2020
Program Management (II)	1	2020	4	2020
Engineering Support (Government II)	1	2021	4	2021
Test and Evaluation (Government II)	1	2021	4	2021
Program Management (Government II)	1	2021	4	2021

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> S70 / <i>Personnel Recovery Support System (PRSS)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
<i>S70: Personnel Recovery Support System (PRSS)</i>	-	0.936	0.000	0.000	-	0.000	0.000	0.395	0.796	0.649	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Provides system research, development and testing of the Personal Recovery Support System (PRSS)/Personnel Recovery Support Equipment (PRSE) supporting operations to report and locate isolated, missing, detained or captured (IMDC) Soldiers. This project provides the continued maturation of PRSS products that enable operations to report and locate isolated Soldiers. The PRSS program consists of the enhancement of existing products to ensure continued successful interoperability within the relevant theater of operations and the Continental United States (CONUS), and testing of the Personnel Recovery Device (PRD) that provides Low Probability of Intercept (LPI)/Low Probability of Detection (LPD).

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Development of Personnel Recovery Support System (PRSS)	0.936	-	-	-	-
<b>Description:</b> Integration, evaluation, testing and qualification of PRSS products to ensure continued successful interoperability within the relevant theater of operation, and development of a PRD that operates over a secure architecture.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.936	-	-	-	-

**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• G01101: <i>Personnel Recovery Support System (PRSS)</i>	10.175	9.382	4.625	3.721	8.346	4.593	4.599	5.373	6.668	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

Execute PRSS program development effort for performance optimization through contracts with industry and Military Interdepartmental Purchase Requests to other Governmental agencies. Perform continuing development and test of new waveforms and hardware to ensure successful interoperability for personnel recovery, and to mitigate potential security compromises to the PRSS system.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S70 / <i>Personnel Recovery Support System (PRSS)</i>

In FY 2023 PRSS products will be adapted and tested for integration onto various Army and sister service aerial platforms to increase coverage beyond current theaters of operation.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604601A / Infantry Support Weapons				S70 / Personnel Recovery Support System (PRSS)							
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
PM Administration	Allot	Various Government : Huntsville, Alabama	0.972	0.016		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.972	0.016		-		-		-		-	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Personnel Recovery Support System Development Systems Engineering	MIPR	Various Organizations : Various Locations	8.348	0.440		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			8.348	0.440		-		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Matrix Support	MIPR	Various Organizations : Various Locations	2.075	0.273		-		-		-		-	Continuing	Continuing	Continuing
FY 2019 SBIR/STTR/ FFRDC Transfer	Various	FY2019 SBIR/STTR Transfer : FY2019 SBIR/STTR Transfer	-	0.032		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.075	0.305		-		-		-		-	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2021 Army</b>												<b>Date:</b> February 2020			
<b>Appropriation/Budget Activity</b> 2040 / 5				<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>				<b>Project (Number/Name)</b> S70 / <i>Personnel Recovery Support System (PRSS)</i>							
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Testing/ Operational Testing	MIPR	Various Organizations : Various Locations	3.334	0.175		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.334	0.175		-		-		-		-	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>			14.729	0.936	0.000		-		-		-	Continuing	Continuing	N/A	
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S70 / <i>Personnel Recovery Support System (PRSS)</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Personnel Recovery Support System (PRSS) Development Oversight	PRSS Oversight																											
Resume PRSS Development Oversight																												
PRSS Development and Test	PRSS Development and Test																											
Resume PRSS Development and Test																												
PRSS LUT and Operational Testing	LUT and Operational Testing																											
PRSS Upgrades and Adaptations to New Platforms	PRSS Upgrades and Adaptations																											
Next Generation PRSS Upgrades and Adaptations to New Platforms																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> S70 / <i>Personnel Recovery Support System (PRSS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Personnel Recovery Support System (PRSS) Development Oversight	1	2010	4	2019
Resume PRSS Development Oversight	1	2023	4	2025
PRSS Development and Test	1	2010	4	2019
Resume PRSS Development and Test	3	2023	4	2025
PRSS Prototype Hardware Build and Integration	3	2010	2	2016
PRSS LUT and Operational Testing	3	2018	1	2019
PRSS Upgrades and Adaptations to New Platforms	1	2015	4	2019
Next Generation PRSS Upgrades and Adaptations to New Platforms	1	2023	4	2025

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> VS5 / <i>Soldier Protective Equipment</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>VS5: Soldier Protective Equipment</i>	-	4.667	6.627	8.319	-	8.319	9.656	9.480	8.498	9.063	0.000	56.310
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. It supports Engineering and Manufacturing Development (EMD) and full rate production decision reviews of Soldier Protective Equipment. It leverages advancements in technology to continue improvements to the Army's Personal Protective Equipment (PPE) portfolio to include hard and soft body armor components (Vital Torso Protection (VTP) and Torso and Extremity Protection (TEP) respectfully), helmets (Integrated Head Protection System (IHPS) and other personal protective equipment (Military Combat Eye Protection (MCEP)). This project will continue to support cross-service initiatives to increase commonality.

In March 2019 \$1.162 million of FY19 funding was realigned to Individual Weapons Engineering Development Program Element 0604601A, Project S63.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> Soldier Protective Equipment	4.360	6.326	8.319	-	8.319
<b>Description:</b> Project VS5 (Soldier Protective Equipment) supports engineering and manufacturing development of Individual Soldier Ballistic Protection equipment. It will leverage advancements in technology to continue incremental improvements to Personal Protective Equipment (PPE).					
<b>FY 2020 Plans:</b> Continue to evaluate and develop system and subsystem technologies across the PPE portfolio from emerging ballistic/blast threats. Continue to test ballistic properties of current PPE after exposure to extreme storage conditions for better shelf and service life predictions. Continue Soldier Protection System (SPS) system human factors and environmental/exposure testing, including Cold & Tropical regions, durability, etc.). Plan to conduct First Article Test (FAT) of Next GEN IHPS. Plan for introducing advanced Technology and materials into production processes as these technologies mature.					
<b>FY 2021 Base Plans:</b> Continue to evaluate and develop system and subsystem technologies across the PPE portfolio from emerging ballistic/blast threats. Continue to test ballistic properties of current PPE after exposure to extreme storage conditions for better shelf and service life predictions. Continue Soldier Protection System (SPS) system human					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> VS5 / <i>Soldier Protective Equipment</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
factors and environmental/exposure testing, including Cold & Tropical regions, durability, etc.). Refine planning for introducing advanced Technology and materials into production processes as these technologies mature. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding increase in Soldier Protective Equipment portfolio is due to anticipated requirement changes in FY 2021.					
<b>Title:</b> FY 2019 Rescission <b>Description:</b> Rescission Infantry support weapons - S62 counter-defilade target engagement	0.307	-	-	-	-
<b>Title:</b> FY 2020 SBIR/STTR Transfer <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638 <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638	-	0.301	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	4.667	6.627	8.319	-	8.319

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• VS4: <i>Soldier Protective Equipment</i>	20.828	2.836	4.441	-	4.441	4.905	6.482	8.143	8.143	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**  
Acquisition strategies for these programs vary in methods, and range from: 1) Material Change programs that result in engineering changes to existing systems to; 2) Traditional development programs that include an Engineering and Manufacturing Development phase ranging in duration from 12 to 48 months, depending on the level of design complexity and testing required.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604601A / Infantry Support Weapons				VS5 / Soldier Protective Equipment								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Various SPIE : Various	0.436	0.580		0.367		0.645		-		0.645	Continuing	Continuing	Continuing	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.301		-		-		-	0.000	0.301	-	
<b>Subtotal</b>			0.436	0.580		0.668		0.645		-		0.645	Continuing	Continuing	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Prototype Contracts	Various	Various : Various	33.660	1.125		0.940		0.681		-		0.681	Continuing	Continuing	Continuing	
Prod Sys Engineering Spt	MIPR	Various : Various	8.109	-		1.940		3.121		-		3.121	Continuing	Continuing	Continuing	
FY 2019 FFRDC /SBIR / STTR	TBD	TBD : TBD	-	0.228		-		-		-		-	Continuing	Continuing	Continuing	
<b>Subtotal</b>			41.769	1.353		2.880		3.802		-		3.802	Continuing	Continuing	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Matrix Engineering Spt	MIPR	Various : Various	3.102	0.627		0.440		1.880		-		1.880	Continuing	Continuing	Continuing	
<b>Subtotal</b>			3.102	0.627		0.440		1.880		-		1.880	Continuing	Continuing	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Environmental/HFE	MIPR	Various DTC & OTC : Various DTC & OTC	10.810	2.107		2.639		-		-		-	Continuing	Continuing	Continuing	



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> VS5 / <i>Soldier Protective Equipment</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025																															
	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																												
Test and Qualify Improvements to SPS through FY23																																																								
VTP LRIP Production																																																								
VTP FRP Decision																													▲ 3																											
IHPS FRP	▲ 1																																																							
Transition Combat Eye Protection - Authorized Protective Eyewear (APEL) Upd																													▲ 2																											
Transition Combat Eye Protection Durability/Cold Weather Test																																																								
SPS System Level Test Technology Insertions																																																								
Next Gen IHPS Contract Award																													▲ 4																											
Next Gen IHPS Deliveries																																																								

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604601A / <i>Infantry Support Weapons</i>	<b>Project (Number/Name)</b> VS5 / <i>Soldier Protective Equipment</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Test and Qualify Improvements to SPS through FY23	1	2015	4	2023
TEP Transition to FRP	1	2017	1	2017
VTP LRIP Production	1	2017	1	2021
VTP FRP Decision	1	2020	1	2020
IHPS FRP	1	2019	1	2019
Transition Combat Eye Protection - Authorized Protective Eyewear (APEL) Update	3	2019	3	2019
Transition Combat Eye Protection Durability/Cold Weather Test	2	2019	3	2019
SPS System Level Test Technology Insertions	1	2017	4	2023
Next Gen IHPS Contract Award	1	2021	1	2021
Next Gen IHPS Deliveries	4	2021	4	2025