Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	86.966	66.943	87.643	-	87.643	73.419	53.948	78.553	72.073	Continuing	Continuing
ES9: *Advanced Tactical Parachute System*	-	0.000	1.487	5.840	-	5.840	7.200	6.694	1.851	3.000	Continuing	Continuing
EW4: *Crew Served Weapons Engineering Development*	-	0.000	14.447	9.251	-	9.251	9.952	10.229	23.388	19.045	Continuing	Continuing
FF2: *Small Arms Fire Control*	-	0.000	0.000	20.117	-	20.117	20.418	9.067	8.259	11.388	0.000	69.249
FI2: *Lightweight 30mm Cannon*	-	0.000	0.000	5.500	-	5.500	0.000	0.000	0.000	0.000	0.000	5.500
S58: *Soldier Enhancement Program*	-	15.334	6.776	3.353	-	3.353	3.257	3.322	3.389	3.414	Continuing	Continuing
S60: *Clothing & Equipment*	-	5.814	10.166	7.022	-	7.022	5.413	7.528	8.803	5.075	Continuing	Continuing
S61: *Acis Engineering Development*	-	3.380	3.811	4.011	-	4.011	3.992	2.063	1.919	1.958	Continuing	Continuing
S62: *Counter-Defilade Target Engagement - SDD*	-	20.242	10.862	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S63: *Individual Weapons Engineering Development*	-	22.377	11.801	6.961	-	6.961	6.616	7.013	21.711	17.600	Continuing	Continuing
S64: *Common Remotely Operated Wpn Sys (CROWS)*	-	3.952	4.331	22.500	-	22.500	9.300	0.000	0.000	0.000	Continuing	Continuing
S70: *Personnel Recovery Support System (PRSS)*	-	1.208	1.121	1.330	-	1.330	1.149	1.176	0.651	0.650	0.000	7.285
VS5: *Soldier Protective Equipment*	-	14.659	2.141	1.758	-	1.758	6.122	6.856	8.582	9.943	Continuing	Continuing

A. Mission Description and Budget Item Justification

Fiscal Year (FY) 2016 budget request funds Infantry Support Weapons. 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.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604601A *I Infantry Support Weapons*

Project ES9 (Advanced Tactical Parachute System) supports efforts to improve Static Line (SL) and Military Free Fall (MFF) personnel parachutes and associated equipment to include canopy improvements based on integration of new technology with the goal of enhancing the insertion capability of the airborne soldier and increasing the performance, safety and durability of personnel airdrop equipment.

Project EW4 (Crew Served Weapons Engineering) 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 (SAFC)) supports optimized fire control devices to support Squad (S), Crew Served (CS) and Precision (P). SAFC shall increase the probability of hit and decrease time to engage across a range of small arms weapon systems, with a direct-view optic that allows for quicker and more accurate target detection and recognition.

Project FI2 (Lightweight 30mm Cannon) provides increased lethality modification to the Joint Light Tactical Vehicle (JLTV), it serves as the Infantry Brigade Combat Team (IBCT) light reconnaissance vehicle, an upgraded medium caliber weapon will be developed, tested and evaluated for integration into a modified remote weapon station.

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.

Project S60 (Clothing and 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.

Project S61 (Aircrew Integrated Systems) 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.

Project S62 (Counter-Defilade Target Engagement) 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).

Project S63 (Small Arms Improvements) 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).

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604601A *I Infantry Support Weapons*

Project S64 (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.

Project S70 (Personnel Recovery Support System) 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.

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.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	89.661	66.943	72.844	-	72.844
Current President's Budget	86.966	66.943	87.643	-	87.643
Total Adjustments	-2.695	0.000	14.799	-	14.799
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-2.695	0.000	14.799	-	14.799

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) ES9 / *Advanced Tactical Parachute System*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
ES9: *Advanced Tactical Parachute System*	-	0.000	1.487	5.840	-	5.840	7.200	6.694	1.851	3.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding line established in FY17 for the Advanced Tactical Parachute System. Efforts were previously executed in Program Element 0604601A S60.

A. Mission Description and Budget Item Justification

This funding supports engineering and manufacturing development tasks related to Static Line (SL) and Military Free Fall (MFF) personnel parachutes and auxiliary equipment with the goal of enhancing the insertion capability of the airborne soldier and increasing the performance, safety and durability of personnel airdrop equipment. Funds improvements and testing/evaluation of personnel parachute systems. Includes integration and interface on the Soldier system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Advanced Tactical Parachute System	-	1.487	5.840
Description: Funds are a new Project established in FY17. Efforts were previously executed in Program Element 0604601A S60. ***FY 2017 Plans:*** Develop and test T-11 design and pack changes, develop Technical Manual (TM) updates and Modification Work Order (MWO) for the T-11R ripcord redesign. Prove out enhanced capability transitioned from ET8 to ensure viability in modernizing airdrop equipment across the airdrop portfolio to optimize parachutes and ancillary equipment for static line and military free fall parachutists. ***FY 2018 Plans:*** Efforts include enhanced capabilities transition from ET8 to include DT/OT, and purchasing contract data requirements for the Enhanced Electronic Automatic Activation Device (E/EAAD) for use with the RA-1 Advanced Ram Air Parachute System. Complete DT/OT for PARANAVSYS. Obtain MS C decision in 2QFY18 and Full Material Release (FMR) in 3QFY18 for PARANAVSYS. Procure test assets and conduct testing on T-11R (Reserve) improvements to optimize packing of both systems to reduce system profile and increase number of parachutists that can be carried on C-130 and C-17 aircraft. Conduct Operational Tests on and purchasing contract data requirements for the Enhanced Electric Automatic Activation Device (E/EAAD). Conduct developmental tests for Military Free Fall Altimeters. Conduct Salt Water immersion tests to determine impact on service life of RA-1. Conduct B-line riser collapse tests on RA-1. Parachutists Oxygen Delivery System (PODS) Testing to support Milestone C in FY2020.			
Accomplishments/Planned Programs Subtotals	-	1.487	5.840

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** ES9 / *Advanced Tactical Parachute System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPA, MA7801 ATPS: *Advanced Tactical Parachute System*	30.862	16.611	28.440	-	28.440	41.610	48.819	60.280	54.264	0.000	280.886
• RDTE, 643827ET8: *Personnel Airdrop System Development*	-	0.690	0.495	-	0.495	0.400	0.300	1.282	1.280	0	4.447

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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
EW4: *Crew Served Weapons Engineering Development*	-	0.000	14.447	9.251	-	9.251	9.952	10.229	23.388	19.045	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element 0604601A / Infantry Support Weapons, EW4 / Crew Served Weapons Engineering Development Small Arms Fire Control effort has moved to FF2 / Small Arms Fire Control in FY2018 within the same Program Element.

New Start in FY2018: M2 Lightweight Program.

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 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. 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 weapons and/or enhancements. Benefits include continuous improvements to small arms weapons, 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)	FY 2016	FY 2017	FY 2018
Title: New Weapons	-	5.682	3.071
Description: Development of new crew served weapons ***FY 2017 Plans:*** FY2017 New Start. Transition of technologies from Program Element 0603827A S54: Next Generation Squad Automatic Rifle (NGSAR): Work to coordinate and develop the Capability Development Document (CDD), Acquisition Strategy, Capability Production Document (CPD), and provide data from various technologies to better inform stakeholders. Precision Sniper Rifle (PSR): Continue to work in conjunction with Special Operations Command (SOCOM) to 1) support development, acquisition and qualification of primary PSR anti-personnel ammunition and 2) perform acquisition and qualification efforts for PSR anti-materiel ammunition. Both rounds are necessary as a precursor for acquisition efforts slated in FY18 related to source selection activities of a new multi-caliber PSR weapon.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
M3 Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS): Complete operational and limited user test activities to obtain Type Classification and Full Material Release. ***FY 2018 Plans:*** Advanced Sniper Rifle (ASR) (formerly named Precision Sniper Rifle (PSR)): Will continue to support SOCOM in ASR full and open solicitation and bid sample test. Type Classified documentation preparation for both ASR rifle and new ammunition cartridges. Procurement of ASR systems to support Army specific qualification testing. New Weapon Evaluations and Assessments: Initial evaluation and assessment of new weapons.			
Title: Crew Served Weapons Enhancements ***Description:*** Enhancements and developments of Crew Served weapons ***FY 2017 Plans:*** The Gunner Integrated Protection and Restraint System (GIPRS): Improve the force protection, survivability, and effectiveness of the gunner and exposed crew by addressing capability gaps associated with open hatch operations in armored vehicles when exposed to enemy fires. The system integrates the Objective Gunner Protection Kit (OGPK), and Gunner Restraint System (GRS), fielded separately in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). GIPRS improves current and future armored vehicles by providing the Army with an adaptive gunner and exposed crew protection capability, integrating the current inventory of machine guns, close combat missile systems, and target acquisition sensors. FY2017 New Start Increased Barrel Life: Transition of technologies from Program Element 0603827A Project S54. Complete refinement of drawing and specification package, build full length barrels for final qualification and safety confirmation testing. Perform testing at a Government facility. Compact Semi-Automatic Sniper System (CSASS): Conduct operational assessments and evaluations with a Limited User Test (LUT) as well as airborne drop testing. Complete Scoring Conference activities prior to release of the Operational Test Agency Milestone Assessment Report (OMAR). Complete provisioning activities and National Stock Number (NSN) assignment. Complete all documentation and prepare for MS-C /TC STD, Full Rate Production, and Full Material Release decisions in FY2017. Individual Non-Lethal System: Continue to test and evaluate technology and fine tune requirements and ensure all planning documentation is accurate and complete.	-	5.150	4.464

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Sniper Upgrades: Perform feasibility, analysis of alternatives, and cost benefit analysis studies for various fire control and supporting precision enablers to include Shot Counter for Reliability and Maintainability (SCRAM) and cross wind sensing technologies. SCRAM is a system that collects a weapon's shock profile that is translated into diagnostic data to provide life cycle prognosis on individual weapon maintenance. It will increase a weapon life span and reduce maintenance cost and supports Condition Based Maintenance (CBM). Conduct barrel studies for improvements to reliability and accuracy that can be gained through new barrel materials and geometrics. Weapon Upgrades and Accessories: Test, evaluate and analyze ongoing and new activities to enhance Crew Served Weapons. ***FY 2018 Plans:*** New Start: M2 Lightweight Program - To investigate alternative materials (i.e. titanium) in order to lighten the Warfighter's load, to improve Soldier mobility, respond to vehicle weight restrictions, improve weapon parts life, increase durability and potentially increase performance. Will manufacture lightweight titanium weapon parts, will assemble improved parts into legacy weapons, conduct testing (production verification/reliability/user evaluation/air drop) on the improved weapon system and modify weapons based on test results. Increased Barrel Life: Continue to complete refinement of drawing and specification package, build full length barrels for final qualification and safety confirmation testing. Perform testing at a Government facility. Compact Semi-Automatic Sniper System (CSASS): Will continue to conduct operational assessments and evaluations with a Limited User Test (LUT) as well as airborne drop testing . Will complete Scoring Conference activities prior to release of the Operational Test Agency Milestone Assessment Report (OMAR). Complete provisioning activities and National Stock Number (NSN) assignment. Complete all documentation and prepare for MS-C /TC STD, Full Rate Production, and Full Material Release decisions in FY2018. May be used as the Squad Designated Marksman (SDM) materiel solution. M3 Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS): Will complete operational and limited user test activities for the lightweight version M3E1, associated ammunitions and fire control to obtain Type Classification and Full Material Release. Individual Non-Lethal System: Will continue to test and evaluate technology and fine tune requirements and ensure all planning documentation is accurate and complete. Weapon Upgrades and Accessories: Will continue to test, evaluate and analyze ongoing and new activities to enhance Crew Served Weapons.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Small Business Innovation Research (SBIR) Enhancements: Will continue to support Phase II Enhancement and/or initialization of Phase III SBIR activities that transferred from Program Element 0604601A S63 within the same Program Element.			
Title: Ammunition ***Description:*** Improvement of Crew Served Weapons Ammunition ***FY 2017 Plans:*** XM1112 Airburst Non-Lethal Munition (ANLM): Complete type classification and transition to Project Manager Close Combat Systems. Ammunition Upgrades: Continue to test, evaluate and analyze the effect of current and new ammunition on Crew Served Weapons. Specific focus on alignment of requirements between crew served fire control and 40mm air burst munition. ***FY 2018 Plans:*** Ammunition Upgrades: Will continue to test, evaluate and analyze the effect of current and new ammunition on Crew Served Weapons. Specific focus on alignment of requirements between crew served fire control and 40mm air burst munition. Will evaluate other M3/E1 MAAWs munitions such as the smoke and illuminating rounds currently used by SOCOM.	-	0.100	0.226
Title: Combat Optics ***Description:*** Improvement of Combat Optics ***FY 2017 Plans:*** Mounted Machinegun Optic: Continue staffing Capability Production Document (CPD) towards final approval and preparation for MDD for Program of Record. Continue to finalize TEMP, Acquisition Strategy/Acquisition Plan, and Production Readiness Review (PRR) for program execution. Work to prepare Procurement package, plan and develop Request for Proposals for down select. Contract award for initial source selection and down select. Optic Upgrades: Continue engineering evaluations, verification and validation of weapon optics performance requirements. ***FY 2018 Plans:*** Mounted Machinegun Optic: Will continue to finalize Test and Evaluation Master Plan (TEMP), Acquisition Strategy/Acquisition Plan, and PRR for program execution. Complete Procurement package, plan and develop Request for Proposals for down select. Contract award for initial source selection and down select. Develop Test Plan and conduct testing for first down select for further evaluation.	-	0.500	1.390

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Optic Upgrades: Will continue engineering evaluations, verification and validation of weapon optics performance requirements.			
Title: Fire Control ***Description:*** Improvement of Crew Served Weapons fire control. ***FY 2017 Plans:*** Advanced Fire Control with Hyperspectral Target: Continue to assess, evaluate and test manufacturability and fire control system integration. Continue to conduct technical evaluations to determine if Advanced Hyperspectral Target Acquisition (AHTA) should be integrated within an Optics Suite of a Vehicle Mounted Weapon System (e.g. Common Remotely Operated Weapon System) or within the Optics of a Dismounted Weapon System or both. Advanced Fire Control with Precision Projectile/Dynamic: Continue to support integration of component advanced tracking technologies. Continue efforts to include initial integration of technologies including Contracting, System Requirements Review, System Functional Review, and preparations for Preliminary Design Review (PDR). Small Arms Fire Control - Precision (SAFC-P): Continue leveraging previously developed Sniper Rifle Fire Control (SRFC)/ Integrated Ballistic Reticle System (IBRS): Will continue efforts to tailor and qualify IBRS technology in order to address Fire Control System for Precision accuracy requirements identified in the Small Arms Fire Control Capability Development Document (CDD). Small Arms Fire Control - Crew Served (SAFC-C): Develop CDD for SAFC-CS. Fire Control Upgrades: Continue to test, evaluate, and analyze ongoing and new activities to enhance crew served weapons fire control.	-	2.915	-
Title: Research and Analysis ***Description:*** Market Research and Cost Benefit Analysis ***FY 2017 Plans:*** Continue Market Research and Cost Benefit Analysis of new small arms weapon and/or enhancements for engineering and manufacturing development. ***FY 2018 Plans:***	-	0.100	0.100

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will continue Market Research and Cost Benefit Analysis of new small arms weapon and/or enhancements for engineering and manufacturing development.			
Accomplishments/Planned Programs Subtotals	-	14.447	9.251

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• Advanced Development: *RDTE S54, Program Element 0603827A - Soldier Systems*	7.153	10.554	6.851	-	6.851	10.377	9.312	15.421	19.595	Continuing	Continuing
• Sniper Rifle MODS: *WTCV, GZ1500, Sniper Rifle MODS*	0.980	0.971	1.488	-	1.488	3.284	1.488	2.481	2.450	Continuing	Continuing
• M249 SAW MODS: *WTCV, GZ1290, M249 Squad Automatic Weapon (SAW) MODS*	1.190	1.179	3.339	-	3.339	3.959	4.526	3.444	-	Continuing	Continuing
• M240 Medium Machine Gun MODS: *WTCV, GZ1300, M240 Medium Machine Gun MODS*	1.708	1.784	4.577	-	4.577	7.002	7.156	6.292	5.406	Continuing	Continuing
• MK-19 Grenade Machine Gun MODS: *WTCV, GB3000, MK-19 Grenade Machine Gun MODS*	-	4.959	2.000	-	2.000	2.040	2.081	7.122	12.165	Continuing	Continuing
• M2 .50 CAL Heavy Machine Gun MODS: *WTCV, GB4000, M2 .50 CAL Heavy Machine Gun MODS*	43.720	48.582	47.414	-	47.414	37.567	11.703	10.916	3.333	Continuing	Continuing
• Modifications Less Than $5.0M: *WTCV, GC0925, Modifications Less Than $5.0M*	3.737	3.157	2.219	-	2.219	5.968	5.482	3.771	3.548	Continuing	Continuing
• Items Less Than $5.0M: *WTCV, GL32000, Items Less Than $5.0M*	3.408	2.331	5.075	-	5.075	1.235	1.697	2.978	3.000	Continuing	Continuing
• M240 Machine Gun: *WTCV, G13000, M240 Machine Gun*	7.000	-	1.992	-	1.992	-	-	-	-	Continuing	Continuing
• Compact Semi-Auto Sniper System: *WTCV, G01507,*	-	0.992	-	-	-	8.310	41.360	41.360	15.050	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Compact Semi-Automatic Sniper System (CSASS)											
• Soldier Enhancement Program: *RDTE S58, Program Element 0654601 - Soldier Enhancement Program*	15.334	6.776	3.353	-	3.353	3.257	3.322	3.389	3.414	Continuing	Continuing
• Precision Sniper Rifle: *WTCV, G015060, Precision Sniper Rifle*	-	-	-	-	-	-	9.500	13.500	15.500	Continuing	Continuing

Remarks

In support of Small Arms Requirements, components or prototypes developed in Small Arms Improvement, Project S54, Program Element 0603827A, (Budget Activity 4) is transitioned to Crew Served Weapons Engineering Development, Project EW4, Program Element 0604601A, (Budget Activity 5) 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 production or modification program.

D. Acquisition Strategy

Primary strategy is to mature and finalize design efforts, award Research, Development, Test and Evaluation (RDT&E) hardware contracts, and test and evaluate systems that result in type classification and follow-on production contract awards.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) FF2 / *Small Arms Fire Control*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
FF2: *Small Arms Fire Control*	-	0.000	0.000	20.117	-	20.117	20.418	9.067	8.259	11.388	0.000	69.249
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Small Arms Fire Control (SAFC) was previously funded under Projects S63 and EW4, Program Element (PE) 0604601A Infantry Support Weapons, and will transition to FF2 in FY2018 under the same PE.

A. Mission Description and Budget Item Justification

Small Arms Fire Control (SAFC) is a requirement for optimized fire control devices to support Squad (S), Crew Served (CS) and Precision (P). SAFC shall increase the probability of hit and decrease time to engage across a range of small arms weapon systems, with a direct-view optic that allows for quicker and more accurate target detection and recognition. The SAFC shall utilize an open system of systems architecture comprised of modular components, to deliver current ground forces the initial increased core capability followed by increasing increments of capability over time as technology matures. Small Arms Fire Control will culminate in three configurations: a Small Arms Fire Control - Squad (SAFC-S), Small Arms Fire Control - Crew Served (SAFC-CS), and Small Arms Fire Control - Precision (SAFC-P). They may include technology such as variable magnification direct view (day) optics, atmospheric sensors, an overlaid digital display, weapon orientation sensor, range determination, ballistic computer, disturbed reticle, and networked lethality. There are also other associated fire control efforts being worked simultaneously to include Advanced Individual Handheld Binocular (AIHB), Advanced Fire Control with Precision Projectile Tracking, and Small Arms Fire Control for 40mm Low Velocity.

FY2018 RDT&E funding in the amount of $20.117 million will award a contract and provide for Government and contractor support to initiate the Engineering and Manufacturing Development Phases for the two (2) Fire Control configurations (SAFC-CS and SAFC-P). For all variants, FY2018 funding will be focused on contract award, initial design/early prototyping and bid sample testing. Other associated fire control efforts being worked simultaneously to include Multi-Spectral Imaging CROWS insertion, Advanced Individual Handheld Binocular (AIHB), Advanced Fire Control with Precision Projectile Tracking, and Small Arms Fire Control for 40mm Low Velocity.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Design, Develop and Fabricate	-	-	11.412
Description: Includes contract awards for the Engineering and Manufacturing Development of the three Fire Control configurations (SAFC-S, SAFC-CS and SAFC-P) and the Advanced Individual Handheld Binocular (AIHB). ***FY 2018 Plans:*** Multiple contract awards will begin the development and integration of various Fire Control configurations and development of initial prototypes. Initial prototypes will be delivered, system functional reviews will be conducted, and a design alternation plan will be established.			
Title: Engineering Support	-	-	3.530

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** FF2 / *Small Arms Fire Control*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: Government engineering support at lab/center, providing oversight of design development, integration and contractor performance. ***FY 2018 Plans:*** Will provide engineering support and oversight of design improvements and contractor performance. Will participate in source selection activities and technical reviews.			
Title: Test and Evaluation ***Description:*** Government testing and evaluation of Commercial Off The Shelf / Non-Developmental Item (COTS/NDI) items, prototypes, articles and improvements. ***FY 2018 Plans:*** Will develop test and evaluation criteria and documentation, testing of bid samples, and testing and evaluation of improvements and initial prototypes. Prototype systems will be tested both for technical capability as well as user evaluation. Will assess and evaluate incorporating existing target acquisition/fire control component technologies into binoculars. Recommendations for system improvement and improved acceptability will be generated.	-	-	3.894
Title: Program Management ***Description:*** Program management office, providing oversight of contract actions, engineering support and test activities. ***FY 2018 Plans:*** Will provide program oversight of design, development, integration and testing, to include contract actions, engineering support and test activities throughout the fiscal year.	-	-	1.281
Accomplishments/Planned Programs Subtotals	-	-	20.117

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• 0603827A: *Small Arms Improvement: RDTE S54*	7.153	10.554	6.851	-	6.851	10.377	9.312	15.421	19.595	Continuing	Continuing
• G17202000: *CREW SERVED SA-FC*	-	-	-	-	-	-	-	24.614	38.333	Continuing	Continuing
• G17203000: *Precision SA-FC*	-	-	-	-	-	-	2.650	18.095	31.880	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** FF2 / *Small Arms Fire Control*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost

Remarks

Small Arms Fire Control was previously funded on Program Element 0604601A Infantry Support Weapons, under Projects S63 and EW4.

D. Acquisition Strategy

The Small Arms Fire Control (SAFC) program will use an incremental developmental acquisition strategy.

The Small Arms Fire Control - Precision (SAFC-P) shall award one (1) Engineering and Manufacturing Development contract in FY2018 and a Production contract in FY2020. Total Approved Acquisition Objective (AAO) for the SAFC-P is 6,004 systems.

The Small Arms Fire Control - Crew Served (SAFC-CS) shall award up to three (3) Engineering and Manufacturing Development contracts in late FY2018, with a follow-on contract option to fully develop the system. A fixed-price Production contract shall be awarded in FY2020. Total Approved Acquisition Objective (AAO) for the SAFC-CS is 20,478 systems.

The Small Arms Fire Control - Squad (SAFC-S) shall award up to two (2) Engineering and Manufacturing Development contracts in FY2019, carrying both systems through Critical Design Review in FY2020. Iterative prototyping will be used to gather both technical and user feedback, and the continuous engineering improvement will be made on the system design. Based on test data and user feedback, a single vendor will be down-selected for Production option in FY2021. Total Approved Acquisition Objective (AAO) for the SAFC-S is 48,095 systems.

Additional Small Arms Fire Control Projects: Other associated Fire Control will be tested and evaluated simultaneously.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) FF2 / *Small Arms Fire Control*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Manufacturing Development Contract - Precision Fire Control	C/CR	TBD : TBD	0.000	-		-		5.193	Mar 2018	-		5.193	0.000	5.193	0.000
Engineering & Manufacturing Development Contract #1 - Crew Served Fire Control	C/CR	TBD : TBD	0.000	-		-		0.500	Sep 2018	-		0.500	0.000	0.500	0.000
Engineering & Manufacturing Development Contract #2 - Crew Served Fire Control	C/CR	TBD : TBD	0.000	-		-		0.500	Sep 2018	-		0.500	0.000	0.500	0.000
Engineering & Manufacturing Development Contract #3 - Other	C/CR	TBD : TBD	0.000	-		-		3.500	Mar 2018	-		3.500	0.000	3.500	0.000
		Subtotal	0.000	-		-		9.693		-		9.693	0.000	9.693	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	US Army Armament Research, Development and Engineering Center (ARDEC) : Picatinny Arsenal, NJ	0.000	-		-		3.530	Oct 2017	-		3.530	0.000	3.530	0.000
Program Management	Allot	Project Manager Soldier Weapons (PMSW) : Picatinny Arsenal, NJ	0.000	-		-		1.500	Oct 2017	-		1.500	0.000	1.500	0.000
Contractor Support	C/FFP	TBD : TBD	0.000	-		-		1.500	Oct 2017	-		1.500	0.000	1.500	0.000
		Subtotal	0.000	-		-		6.530		-		6.530	0.000	6.530	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) FF2 / *Small Arms Fire Control*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	US Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	-		-		1.419	Jan 2018	-		1.419	0.000	1.419	0.000
Test and Evaluation	MIPR	US Army Tank and Automotive Command (TACOM) : Warren, MI	0.000	-		-		0.850	Nov 2017	-		0.850	0.000	0.850	0.000
Test and Evaluation	MIPR	Maneuver Battle Lab, US Army Maneuver Center of Excellence : FT Benning, GA	0.000	-		-		0.800	Oct 2017	-		0.800	0.000	0.800	0.000
Test and Evaluation	MIPR	White Sands Missile Range : White Sands Missile Range, NM	0.000	-		-		0.825	Nov 2017	-		0.825	0.000	0.825	0.000
		Subtotal	0.000	-		-		3.894		-		3.894	0.000	3.894	0.000

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		0.000		20.117		-		20.117	0.000	20.117	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** FF2 / *Small Arms Fire Control*

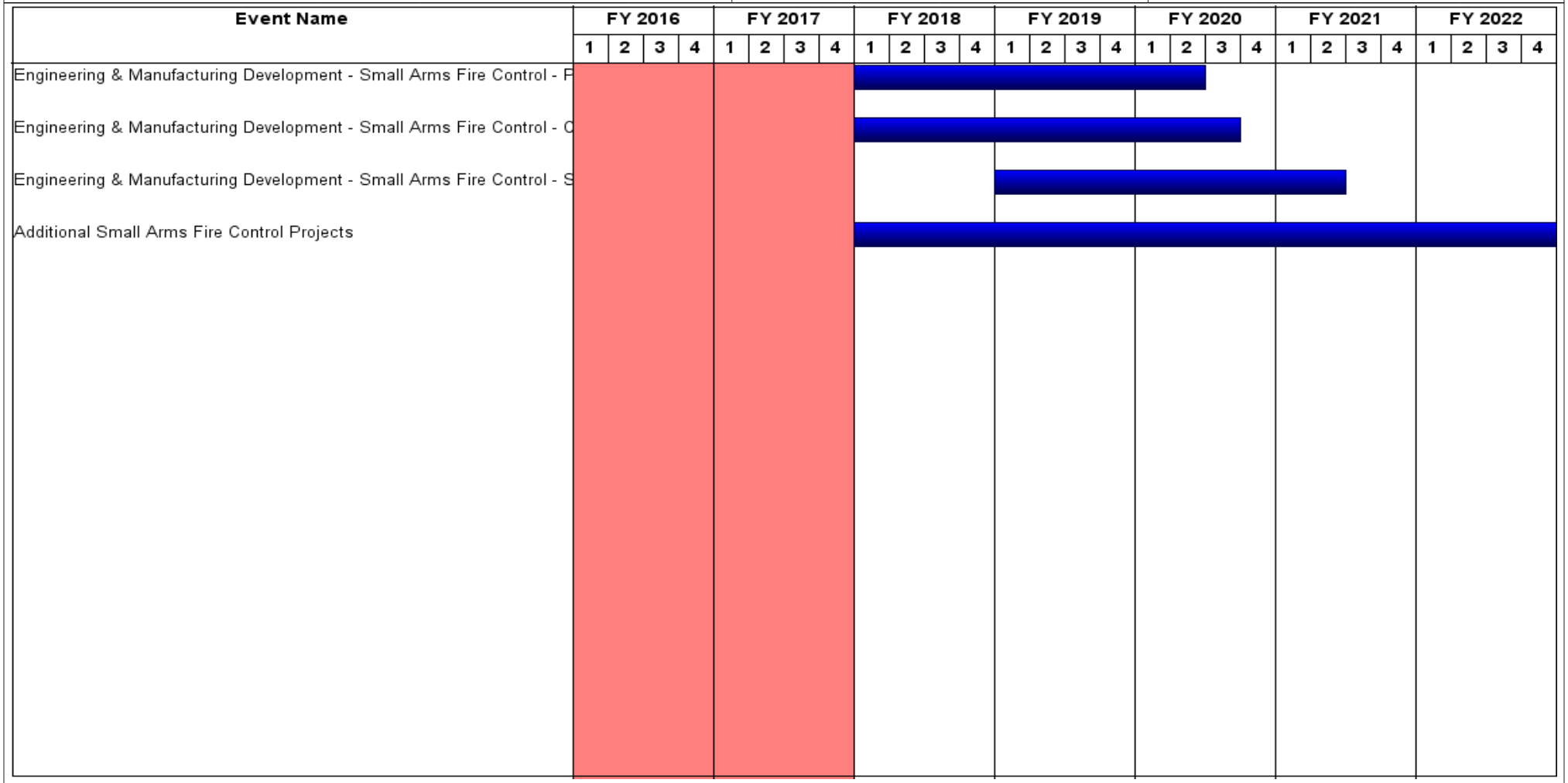

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** FF2 / *Small Arms Fire Control*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Engineering & Manufacturing Development - Small Arms Fire Control - Precision	1	2018	2	2020
Engineering & Manufacturing Development - Small Arms Fire Control - Crew Served	1	2018	3	2020
Engineering & Manufacturing Development - Small Arms Fire Control - Squad	1	2019	2	2021
Additional Small Arms Fire Control Projects	1	2018	4	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) FI2 / *Lightweight 30mm Cannon*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
FI2: *Lightweight 30mm Cannon*	-	0.000	0.000	5.500	-	5.500	0.000	0.000	0.000	0.000	0.000	5.500
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY2018.

A. Mission Description and Budget Item Justification

In support of an Army directed requirement (reference DAPR-ZA Memorandum, dated 5 July 2016) to provide an increased lethality modification to the Joint Light Tactical Vehicle (JLTV), to serve as the Infantry Brigade Combat Team (IBCT) light reconnaissance vehicle, an upgraded medium caliber weapon will be developed, tested and evaluated for integration into a modified remote weapon station.

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)	FY 2016	FY 2017	FY 2018
Title: Contractor Design and Prototype Fabrication ***Description:*** Includes contractor design, development and prototype fabrication for engineering and manufacturing development of the XM914 30mm autocannon. ***FY 2018 Plans:*** Contractor will begin work on the design and development effort for the XM914 30mm autocannon. Initial prototypes of the weapon and test hardware will be purchased to conduct safety and limited reliability testing.	-	-	3.600
Title: Engineering Support ***Description:*** Government engineering support at lab/center, providing design, limited testing and oversight of development and contractor performance. ***FY 2018 Plans:*** Will provide design and development input, oversight of contractor performance, and participation in technical reviews.	-	-	1.150
Title: Test and Evaluation ***Description:*** Government testing and evaluation of weapon prototype, articles and system improvements.	-	-	0.500

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** FI2 / *Lightweight 30mm Cannon*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2018 Plans: Will conduct initial testing with prototype weapons acquired during assessment. Will develop test and evaluation plans, criteria and documentation. Recommendations for system improvement will be generated.			
Title: Program Management ***Description:*** Program management office provides oversight of contract actions, engineering support and test activities. ***FY 2018 Plans:*** Will provide program oversight of design, development, integration and testing, to include contract actions, engineering support and test activities throughout the fiscal year.	-	-	0.250
Accomplishments/Planned Programs Subtotals	-	-	5.500

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• GUN AUTOMATIC 30MM M230: *W&TCV, G13800, M230*	-	-	-	-	-	7.500	20.000	10.000	-	0	37.500
• CROWS G04700: *W&TCV, G04700, M153*	40.500	25.164	0.750	-	0.750	2.500	20.000	20.000	-	0	108.914
• CROWS 0604601 / S64: *RDT&E, 0604601 / S64*	3.952	4.331	22.500	-	22.500	9.300	-	-	-	0	40.083

Remarks

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. In order to meet the Urgent Materiel Release (UMR) requirement of nine (9) systems by FY19 (and the remaining 243 systems to follow), a sole source contract based on urgency will be pursued for a period of performance of one (1) year. A long term Indefinite Delivery/Indefinite Quantity (IDIQ) type contract will be pursued for the year to follow.

The program supports new and emerging urgent requirements for the Joint Light Tactical Vehicle Directed Requirement and will support integration with the Remote Weapon Station on the vehicle or other platforms.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** FI2 / *Lightweight 30mm Cannon*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S58 / *Soldier Enhancement Program*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S58: *Soldier Enhancement Program*	-	15.334	6.776	3.353	-	3.353	3.257	3.322	3.389	3.414	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Description: The Soldier Enhancement Program (SEP) was established by the Fiscal Year 1990 National Defense Authorization Act. SEP provides an enduring process 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 Army Infantryman's and Soldiers' ability to execute their combat mission. In contrast to the traditional acquisition cycle, SEP provides significant savings and acceleration of testing and evaluation of items. The SEP program is managed jointly by Program Executive Office (PEO) Soldier and the U.S. Army Training and Doctrine Command (TRADOC) Maneuver Center of Excellence (MCoE). SEP suggestions are submitted by individual Soldiers, Field Commanders, commercial manufacturers, and others via the PEO Soldier SEP website. Viable suggestions are vetted by a Council of Colonels (CoC) and validated as SEP initiatives by Director, Capabilities, Integration, Prioritization and Analysis (DAMO-CI). Validated SEP initiatives are procured in limited quantities for evaluation and testing of feasibility and suitability. Based on the evaluation findings, the SEP CoC provides one or more of the following courses of action: (1) no further action, (2) item did not meet objectives, (3) inform deliberate or urgent/emergent requirements generation, (4) initiate a new Program of Record (POR), (5) improve an existing POR, (6) transition to the Rapid Equipping Force (REF), or (7) add to the Rapid Fielding Initiative (RFI) list.

Justification: FY18 RDT&E funding supports SEP evaluations and documentation of results.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Soldier Enhancement Program (SEP) Evaluations	4.828	6.255	2.821
Description: Procured and evaluated COTS/GOTS/NDI items that have the potential to enhance Soldier combat effectiveness. ***FY 2016 Accomplishments:*** Evaluated 27 SEP initiatives. Product evaluations included safety testing, collection, analysis of user feedback and documentation of results. ***FY 2017 Plans:*** Funding will support evaluation of approximately 30 new initiatives. Evaluations will include safety testing, collection, and analysis of user feedback/results and documentation of results. ***FY 2018 Plans:*** Funding will support evaluation of approximately 25 initiatives. Product evaluations will include safety testing, collection, and analysis of user feedback/results and documentation of results.			
Title: Soldier Enhancement Program Evaluations	10.000	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S58 / *Soldier Enhancement Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: Additional funding will support evaluation of SEP initiatives. ***FY 2016 Accomplishments:*** Evaluated 41 SEP initiatives. Evaluations included safety testing, collection, analysis of user feedback and documentation of results.			
Title: Systems Engineering and Program Management. ***Description:*** Systems Engineering and Program Management. ***FY 2016 Accomplishments:*** Received and reviewed incoming proposals. Coordinated with industry and TRADOC to ensure that submitted proposals satisfied user needs. Evaluated SEP initiatives will received a recommendation to either inform a requirement, transition to an existing POR or were included in the GSA and/or DLA catalogs for future procurements. ***FY 2017 Plans:*** The SEP team will continue to receive and review incoming proposals. Coordination with industry and TRADOC to ensure submitted proposals will continue to satisfy needs. Evaluated SEP initiatives will receive a recommendation to either inform a requirement, transition to an existing Program of Record or be included in the GSA and/or DLA catalogs for future procurements. ***FY 2018 Plans:*** Upon conclusion of soldier evaluations, the SEP team will receive and review incoming proposals. The team will coordinate with industry and TRADOC to ensure submitted proposals satisfy Army needs. Will continue to evaluate SEP initiatives and provide recommendations.	0.506	0.521	0.532
Accomplishments/Planned Programs Subtotals	15.334	6.776	3.353

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPA3 MA6800: *Soldier Enhancement - Other Support Equipment - MA6800*	2.287	2.112	1.095	-	1.095	1.117	1.139	1.162	1.175	Continuing	Continuing
• OPA2 BA5300: *Soldier Enhancement - Comms & Electronics Equipment - BA5300*	0.349	-	-	-	-	-	-	-	-	0	0.349
• AMMO: *Soldier Enhancement Program (SEP) Ammo*	-	0.341	0.248	-	0.248	0.255	0.262	0.269	0.274	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S58 / *Soldier Enhancement Program*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• WTCV GC0076: *Soldier Enhancement - Smalls Arms Weapons - GC0076*	2.392	3.155	1.573	-	1.573	1.654	1.688	1.721	1.753	Continuing	Continuing

Remarks

D. Acquisition Strategy

SEP focuses on COTS/GOTS/NDI initiatives submitted by Soldiers and industry. SEP proposals are reviewed and approved semi-annually. Procurement funds SEP COTS/GOTS/NDI items for 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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S60 / *Clothing & Equipment*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S60: *Clothing & Equipment*	-	5.814	10.166	7.022	-	7.022	5.413	7.528	8.803	5.075	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding supports engineering and manufacturing development tasks related to individual clothing, equipment and personnel parachutes with the goal of enhancing the survivability, mobility and quality of life of the individual Soldier. It funds system integration and formal Developmental Testing/Operational Testing of preproduction and production representative systems leveraging advancements in materials, fabrication techniques, moisture management, flame resistance, antimicrobial treatments, insect protection, extreme environmental protection and chemical/biological protection and camouflage, to include evaluation, test, and conduct of Soldier evaluations of Organizational Clothing and Individual Equipment appropriate for use in jungle/tropical and Arctic 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. It also funds improvements and testing/evaluation of personnel parachute systems through FY16.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Soldier Uniforms and Clothing	4.168	4.000	5.820
Description: Develop and provide superior and sustainable integrated clothing for the Soldier in a rapidly changing global environment.			
FY 2016 Accomplishments: Uniform Clothing and Environmental Clothing System. Established shade standards for fabrics and components used in Operational Camouflage Pattern (OCP) organizational clothing. Purchased test assets of improved fabrics for reduced weight of winter overwhites. Flame Resistant Clothing. Initiated developmental test of Government designed/owned Knee Pad for the Army Combat Pants. Clothing Bag. Continued to refine designs and incorporate alternate materials and designs in clothing bag items including the Women's Army Service Uniform (ASU) cape, and alternate fabrics for the Army Physical Fitness Uniform (APFU).			
FY 2017 Plans: Conduct Limited User Evaluation to support Army decision on the Jungle Combat Boot. Conduct limited user evaluation on White Dress Shirts using two best fabrics transitioning from S-53. Develop female variant Army Combat Shirt to support deploying female Soldiers. Conduct female fit sizing study for Army Combat Boots. Develop a Berry Amendment-compliant purchase description for an athletic shoe to be fielded to initial entry Soldiers. Incorporate sizing modification and material improvements			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S60 / *Clothing & Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
to better utilize the Poncho Liner with the Field Tarp. Plans to continue to refine designs and incorporate alternate materials into clothing bag items. ***FY 2018 Plans:*** Uniform Clothing and Environmental Clothing System. Conduct user evaluations on the environmental protective clothing (includes torso and extremity protection) to support a MS C in 4QFY19. Obtain MS C decision for Jungle Boots in 4QFY18. Complete user evaluation for Flame Resistant Fuel Handlers Coveralls to support material change proposal. Complete NDAA-directed testing to develop Purchase Description for Berry Amendment-compliant clothing bag running shoe. Flame Resistant Uniforms: Conduct user evaluation on uniforms made from improved FR materials. Plans to continue to refine designs and incorporate alternate materials into clothing bag items.			
Title: Individual Equipment ***Description:*** Develop and provide superior and sustainable integrated individual equipment for the Soldier in a rapidly changing global environment. ***FY 2016 Accomplishments:*** NBC/Load Carriage. Conducted developmental test and evaluation of MOLLE 4000 rucksack with airborne units. Completed Individual Water Treatment Device (IWTD) P248 standard testing. Airdrop. Conducted bench top testing of updated PARANAVSYS software (v 2.0) with new Nett Warrior End User Device and new Soldier Radio. After program initiation for the Electronic EEAD Program of Record, procured design validation assets and conducted DT to support a MS C in 1QFY18. Conducted tests on the ripcord design and pack tray of the T-11 Reserve (R) parachute to reduce potential of accidental activation. Procured prototype T-11 main canopies and conducted Developmental Testing of revised packing procedures and redesigned corner vent panels to reduce corner vent inversions. Developed prototypes and test redesigned RA-1 Main Riser Trim Straps and Reserve Pilot Chute Spring. Tested updated air permeability treatments for RA-1 canopies to support new production contract award. Conducted Mean-Time-Between-Failure (MTBF) tests of MC-6 and T-11 parachutes to determine if the service life of these parachutes could be extended. ***FY 2017 Plans:*** NBC/Load Carriage/Hydration: Procure samples and conduct live chemical agent testing for the Multi-Purpose Hydration System (MPHS) to increase operational life to reach 365 days once placed into service in an operational environment. Procure samples and conduct testing of tactical holster to be fielded with the new Modular Handgun System. Conduct technical testing of DT/OT	1.646	6.166	1.202

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S60 / *Clothing & Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
on IWTD candidates. Conduct limited user evaluation and abbreviated P248 testing to support MS-C for the Individual Water Treatment Device (IWTD). ***FY 2018 Plans:*** NBC/Load Carriage/Hydration: Investigate enhancements to improve the capability to hydrate in a combat environment. Complete live agent testing for on the move hydration to increase operational life once placed into service in combat environment and conduct second year of five year live agent test protocol to extend shelf-life of hydration systems.			
Accomplishments/Planned Programs Subtotals	5.814	10.166	7.022

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• Clothing and Individual Eqp S53: *RDTE, 0603827.S53, Clothing and Equipment*	9.758	3.582	2.612	-	2.612	1.845	2.495	1.831	2.445	Continuing	Continuing
• Central Funding and Fielding: *OMA, 121017, Central Funding and Fielding*	36.649	37.748	-	-	-	-	-	-	-	Continuing	Continuing
• Advanced Tactical Parachute System: *OPA, MA7801, Advanced Tactical Parachute System*	26.088	16.611	28.440	-	28.440	41.610	48.819	60.280	54.264	Continuing	Continuing
• Force Readiness Operations Support: *OMA, 121018, Force Readiness Operations Support*	-	-	79.417	-	79.417	38.000	39.800	39.100	40.113	0	236.430

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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S61 / *Acis Engineering Development*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S61: *Acis Engineering Development*	-	3.380	3.811	4.011	-	4.011	3.992	2.063	1.919	1.958	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project conducts Engineering and Manufacturing Development (EMD) for 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 Development Document (CDD) addresses capability gaps identified during sustained combat operations in Iraq and Afghanistan including inadequate crew station compatibility 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 ability to safely operate in Degraded Visual Environments (DVE) using Three Dimensional conformal symbology; a Helmet Display and Tracking System (HDTS); 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); and develops and tests a modernized replacement for the Air Warrior survival vest that integrates with Soldier Protection System body armor (Aircrew Combat Ensemble). This project also funds the development and test of deferred CDD capabilities including improved laser eye protection and tactile cueing that enhances aviator SA in a DVE. This program does not duplicate any aircraft platform program efforts. Includes integration and interface of products on Soldiers.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Aircrew Integrated Systems (ACIS) Engineering Development	3.380	3.811	4.011
Description: Development, Integration, evaluation, testing, and qualification of Air Soldier System multi-phased capabilities as technologies mature.			
FY 2016 Accomplishments: Continued integration and Developmental Test of the Air SS in the UH-60L; continued evaluation of P3I candidate commercial products focusing on an Electronic Flight Bag (EFB) solution including market research and performance demonstration of available Commercial Off the Shelf (COTS) devices.			
FY 2017 Plans: Continued evaluation, modification, integration, and qualification of P3I candidate commercial products. Primary focus will be on the detailed design and qualification of a COTS or modified COTS EFB tablet, including formal developmental and operational flight testing scheduled to begin in Fiscal Year (FY) 2017. Other activities will include market research and preliminary evaluation of candidate technologies for applicability to Air SS requirements for improved laser eye protection, integrated soldier power, and/or wireless personal networks.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S61 / *Acis Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2018 Plans: Conduct Operational Test of the Air SS in the UH-60L and complete integration, qualification, and operational test of the Electronic Flight Bag, and continue integration, test, and qualification of the Aircrew Combat Ensemble.			
Accomplishments/Planned Programs Subtotals	3.380	3.811	4.011

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• Aircrew Integrated Sys Adv Dev: *RDTE, A PE 0603827A, PROJ S51 - Adv Dev*	0.146	-	-	-	-	-	-	-	-	0	0.146
• Aircrew Integrated Systems: *Aircraft Procurement, Army SSN AZ3110 - ACIS*	44.085	30.297	47.066	-	47.066	30.896	28.900	26.900	36.004	Continuing	Continuing

Remarks

D. Acquisition Strategy

Engineering and Manufacturing Development 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 in DVE, 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 with head tracking and 3D conformal flight symbology for UH-60 and CH-47 aviators. The Air SS P3I phase includes the development and qualification of the EFB, a digital Army aviation replacement for paper-based DoD Flight Information Publications, and the Aircrew Combat Ensemble (ACE), a replacement for the current Air Warrior survival vest that will further reduce weight and bulk, accommodate migration to the Army's new Soldier Protection System (SPS) modular ballistic protection system, and enhance compatibility and stowage/interface provisions for current and future clothing and individual survival equipment. P3I efforts also continue to develop deferred capabilities as defined within the Capability Development Document (CDD) to include tactile Situational Awareness enhancements and enhanced laser eye protection. Contracts with industry include both Cost and Firm Fixed Price using full and open competition, each evaluated and selected to appropriately share risk between industry and the government.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S62 / *Counter-Defilade Target Engagement - SDD*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S62: *Counter-Defilade Target Engagement - SDD*	-	20.242	10.862	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
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. The number one materiel solution to mitigate the critical capability gap (defeating defilade (hidden) targets from 35-500m) is the XM25. The XM25 provides the Infantry Soldier with a leap-ahead overmatch capability that dramatically increases lethality, range, and capability through the use of a family of programmable 25mm ammunition and allows the Soldier to engage defilade targets with a high degree of accuracy while posing minimal burden, in terms of weight and size. The XM25 fires 25mm munitions including high-explosive airburst (HEAB) and training rounds. The XM25 comes with a target acquisition/fire control subsystem that integrates thermal capability with direct-view optics, laser rangefinder, environmental sensors, fuze setter, ballistic computer, and internal display. The XM25 has a 500-meter point target range and a 800-meter area target range capable of defeating defilade targets.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Engineering and Manufacturing Development/Fabricate	16.179	7.236	-
Description: Description: Engineering Development and Fabrication ***FY 2016 Accomplishments:*** Conducted pre Milestone C system level trade studies and design reviews to improve system effectiveness and reliability. Implemented design modifications to address issues identified during contractor and government testing. Explored Engineering Change Proposals (ECPs) to potentially reduce weight, size, and power consumption. ***FY 2017 Plans:*** Complete build of hardware to support contractor and government testing. Will continue to implement modifications and explore additional engineering changes to potentially reduce weight, size, and power consumption.			
Title: Engineering and Training Development	0.860	0.430	-
Description: Description: Engineering and Training Development ***FY 2016 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S62 / *Counter-Defilade Target Engagement - SDD*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Provided engineering support for weapons systems, subsystems, target acquisition/fire control (TA/FC), ammunition and software design modifications based on lessons learned from contractor testing. Provided engineering support for the development of the XM25 virtual training concept. ***FY 2017 Plans:*** Continue to provide engineering support for weapons systems, subsystems, target acquisition/fire control (TA/FC), ammunition and software design modifications. Will complete training material based on lessons learned during user assessments, Soldier training and log demo activities. Will provide engineering support to complete the development of the virtual training concept for the XM25.			
Title: Development / Operational Test and Evaluation Activities ***Description:*** Description: Test and Evaluate ***FY 2016 Accomplishments:*** Initiated PPQT#2 consisting of government test efforts to evaluate engineering changes, fixes and design modifications to address anomalies. Conducted Design Verification Testing, planned and coordinated Low Rate Initial Production (LRIP), Production Qualification Testing (PQT), and Logistics Demonstrations (Log Demo). ***FY 2017 Plans:*** Conduct PQT of LRIP quantities consisting of government test efforts to evaluate weapon system and TA/FC design and production maturity. Will also conduct Limited User Testing (LUT), LFT&E, and the final log demo.	2.172	2.950	-
Title: Program Management ***Description:*** Description: Program Management ***FY 2016 Accomplishments:*** Provided program management, logistical and life cycle support, to organize, coordinate and control program activities in preparation for Milestone C. ***FY 2017 Plans:*** Provide program management, logistical and life cycle support, to organize, coordinate and control program activities through Low Rate Initial Production (LRIP).	1.031	0.246	-
Accomplishments/Planned Programs Subtotals	20.242	10.862	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S62 / *Counter-Defilade Target Engagement - SDD*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• G16101: *(G16101) Integrated Air Burst Weapon System Family*	-	9.764	-	-	-	-	-	-	-	Continuing	Continuing
• E92500: *(E92500) CTG, 25MM, XM1083 High Explosive Air Burst (HEAB)*	-	0.198	-	-	-	-	-	-	-	Continuing	Continuing
• E92510: *(E92510) CTG, 25MM, XM1081Target Practice (TP)*	-	-	-	-	-	-	-	-	-		

Remarks

D. Acquisition Strategy

The XM25 transitioned from the Technology and Development phase to Engineering and Manufacturing Development (EMD) phase by achieving Milestone B in December 2010. The EMD phase completes development of the XM25 and verifies training solutions for the Milestone C approval currently scheduled for 2QFY17. The Research and Development acquisition strategy is to use sole source contracting with Orbital ATK (formerly known as Alliant Techsystems), Plymouth, MN. Contract is in the process of being Terminated for Default as of 5 April 2017.The default was caused by Heckler and Kotch GmbH (the weapon subcontractor) refusing to deliver 20 already built and purchased weapon subsystems. Orbital ATK and L3 were ready to deliver the ammunition and Fire Controls to the government. Orbital ATK has appealed to the Armed Services Board of Contract Appeals, which may impact the default status."

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S63 / *Individual Weapons Engineering Development*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S63: *Individual Weapons Engineering Development*	-	22.377	11.801	6.961	-	6.961	6.616	7.013	21.711	17.600	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element 0604601A Project S63 - Infantry Support Weapons is renamed Program Element 0604601A Project S63 - Individual Weapons Engineering Development

Program Element 0604601A / Infantry Support Weapons, S63 / Individual Weapons Engineering Development Small Arms Fire Control effort has moved to FF2 / Small Arms Fire Control in FY2018 within same Program Element.

FY2018 New Starts include Interim Combat Service Rifle (ICSR).

A. Mission Description and Budget Item Justification

The Small Arms Improvement Engineering and Manufacturing Development (EMD) program provides funds 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. Small arms 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 weapons and/or enhancements. Benefits include continuous improvements to small arms weapons, 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)	FY 2016	FY 2017	FY 2018
Title: New Weapons	9.975	9.025	6.661
Description: Description: Development of new weapons ***FY 2016 Accomplishments:*** Modular Handgun System (MHS): Provided responses to industry questions regarding the final MHS solicitation. Funded the Integrated Product Team (IPT), closed the final solicitation. Completed, staffed and approved test plans for all Bid Sample Test (BST), and held three Test Readiness Reviews in preparation for technical testing, user testing, and lethality test and evaluation protocol. Completed bid sample testing and Early Warfighter Acceptance assessments of the weapon systems and ammo.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Initiated source selection activities. Completed staffing of documentation required for MS-C decision and briefed MS-C Decision Authority and Army Acquisition Executive (AAE). MS-C achieved. M3 Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS): Completed required acquisition documents for Conditional Materiel Release of M3 weapon and Army adopted 84mm ammunition. Validated the Type Classification exemption per Army Regulation 700-142 for the ammunition. Conducted operational test and evaluation activities on the system. Drafted and staffed required acquisition safety and sustainment documentation necessary to Type Classify the M3 weapon system. In parallel with the M3 Type Classification effort, the IPT prepared some of the necessary documentation in support of Full Materiel Release of the weapon and ammunition. Transitioned within the same Program Element to EW4 in FY2017. Precision Sniper Rifle (PSR): Continued to work in conjunction with Special Operations Command (SOCOM) to 1) support development, acquisition and qualification of primary PSR anti-personnel ammunition and 2) perform acquisition and qualification efforts for PSR anti-materiel ammunition. Both rounds are necessary as a precursor for acquisition efforts in FY2018 for a new multi-caliber PSR weapon. Transitioned within the same Program Element to EW4 in FY2017. Squad Designated Marksman Rifle (SDM): Continue to inform requirements and the Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, and Facilities (DOTMLPF) analysis. Continue to develop Acquisition Strategy and initiate execution.			
FY 2017 Plans: Modular Handgun System (MHS): Continue source selection activities to narrow the competitive range. Award contract for COTS/NDI weapon systems and ammunition. Perform second Logistic Demonstration and begin the ammunition energetic materials qualification testing. Conduct verification, validation, Joint CONOP and limited user test activities to facilitate down selecting to one (1) vendor. Continue to fund the IPT and prepare Type Classification documentation. Squad Designated Marksman Rifle (SDM): Continue to inform requirements and the Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, and Facilities (DOTMLPF) analysis. Continue to develop Acquisition Strategy and initiate execution.			
FY 2018 Plans: Modular Handgun System (MHS): Will continue Production Verification Test activities including Soldier in the Loop Accuracy testing, award first production option for the handguns and ammunition to support completion of Initial Operational Test and Evaluation (IOT&E). Will complete Energetic Material Qualification (EMQ) testing, and conduct Log Demo two (2). Will conduct First Article Test (FAT) for both the full size and compact versions of the MHS. Will conduct activities required to support Conditional Materiel Release, Type Classification – Limited Production, and Full Materiel Release.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Squad Designated Marksman Rifle (SDM): Will continue to inform requirements and the Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, and Facilities (DOTMLPF) analysis. Will continue to develop Acquisition Strategy and initiate execution. FY2018 New Start - The Interim Combat Service Rifle (ICSR) will be a lightweight derivative of a 7.62mm caliber rifle for selected Brigade Combat Teams (BCT) pending development, procurement and fielding of a new Next Generation Squad Weapon (NGSW). BCTs require the capability to engage threat personnel with aimed lethal and accurate fires at ranges exceeding the current 5.56mm Carbine provided today. Threats are now typically engaging US Forces at ranges between 300m - 600m. US Forces require this interim capability to regain parity and limited overmatch while the longer term overmatch capability is under development. New Weapon Evaluations and Assessments: Will continue to provide initial evaluation and assessment of new weapons.			
Title: Small Arms Weapons Enhancements ***Description:*** Description: Enhancements and developments of small arms weapons ***FY 2016 Accomplishments:*** Compact Semi-Automatic Sniper System (CSASS): Awarded a single contract for thirty (30) Non Developmental Items (NDI) weapon systems. Conducted verification and validation Production Qualification Testing (PQT). Conducted a depot assessment and plan, coordinate, resource and conduct Pre-Logistics Demonstration events. Developed a fielding plan. Continued to fund the IPT and initiate preparation of Type Classification and MS-C/TC STD decision documentation. Transitioned within the same Program Element to EW4 in FY2017. Intelligent Rail (Formerly known as Powered Rail): Continued further integration with weapon platform and soldier borne power and data management systems as well as integrating enablers to the weapon platform. Continued supporting efforts related to Ballistic Compensation Over Rail, Polymer Optic Integration, and development of a General Purpose Transceiver to support the integration of various data applications, including network communications. Acquired developmental systems to prepare for and conducted developmental testing and Soldier evaluations. Small Business Innovation Research (SBIR) Enhancements: Continue to support Phase II Enhancement and/or initialization of Phase III SBIR activities.	3.056	0.250	0.100

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Weapon Upgrades and Accessories: Continued to test, evaluate, and analyze ongoing and new activities to enhance small arms weapons. ***FY 2017 Plans:*** FY17 New Start Additive Manufacturing 3D Printing: Continue to use additive manufacturing (3D Printing) methods to fabricate and test selected prototype weapons components for all weapons. Intelligent Rail (Formerly known as Powered Rail): Continue supporting efforts related to Ballistic Compensation Over Rail, Polymer Optic Integration, and development of a General Purpose Transceiver to support the integration of various data applications including network communications. Will support acquired developmental systems to conduct developmental testing and Soldier evaluations. Small Business Innovation Research (SBIR) Enhancements: Continue to support Phase II Enhancement and/or initialization of Phase III SBIR activities. Weapon Upgrades and Accessories: Continue to test, evaluate and analyze ongoing and new activities to enhance small arms weapons. ***FY 2018 Plans:*** Intelligent Rail (Formerly known as Powered Rail): Will continue further integration with weapon platform and soldier borne power and data management systems as well as integrating enablers to the weapon platform. Continued supporting efforts related to Ballistic Compensation Over Rail, Polymer Optic Integration, and development of a General Purpose Transceiver to support the integration of various data applications, including network communications. Acquired developmental systems to prepare for and conducted developmental testing and Soldier evaluations. Small Business Innovation Research (SBIR) Enhancements: Will continue to support Phase II Enhancement and/or initialization of Phase III SBIR activities. Weapon Upgrades and Accessories: Will continue to test, evaluate, and analyze ongoing and new activities to enhance small arms weapons.			
Title: Ammunition ***Description:*** Description: Improvement of small arms ammunition ***FY 2016 Accomplishments:***	1.618	0.250	0.050

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
XM1112 Airburst Non-Lethal Munitions (ANLM): Completed Milestone C package and conducted reliability retest. Transitioned within the same Program Element to EW4 in FY2017. XM1116 12 Gauge Non-Lethal Extended Range: Received approval of the Acquisition Decision Memorandum to allow entry into the production & deployment phase of the Acquisition Lifecycle and Type Classification. User assessment to address the offset aim point issue found when firing the round out of the M26 Modular Shotgun was conducted at ARDEC utilizing the M68 Close Combat Optic instead of the rear sight adapter. ATEC provided final approved version of supportability memo that modifies the current Operational Assessment Report (OAR) to include using the M26 in the standalone configuration with the M68 CCO Optic when firing the round. This program has completed all tasks and has officially transitioned to PMCCS. No further reporting will be provided. This program was transitioned to PM Closed Combat System (CCS) under Program Executive Office (PEO) Ammunition. Ammunition Upgrades: Continued to evaluate the effect of new ammunition on small arms weapons. ***FY 2017 Plans:*** Ammunition Upgrades: Continue to evaluate the effect of new ammunition on small arms weapons. ***FY 2018 Plans:*** Ammunition Upgrades: Will continue to evaluate the effect of new ammunition on small arms weapons.			
Title: Combat Optics ***Description:*** Description: Improvement of combat optics ***FY 2016 Accomplishments:*** Grenadier Sighting System (GSS): Completed Source Selection evaluations and award developmental contract for the GSS, test and evaluation efforts, system engineering analysis, and reviews. Following award of the developmental contract the government conducted a user experiment, system requirements review, and preliminary design review. Further developed test plans and plans for fielding, new equipment training, and development of a deployment logistics package. Mounted Machine Gun Optic: Finalized Machine Gun Optic Capability Production Document (CPD), including anticipated final JROC approval. Conducted final pre-Milestone C activities in preparation for transition to Program of Record in FY2017; emphasis on development of Test & Evaluation Master Plan (TEMP) and Production Readiness Review (PRR). Developed Acquisition Strategy and initial package for Milestone C, Type Classification and Materiel Release. Prepared Milestone Decision Document for program of record. Transitioned within the same Program Element to EW4 in FY2017.	6.720	0.250	0.100

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Optics Upgrades: Continued engineering evaluations, verification and validation of weapon optics performance requirements. ***FY 2017 Plans:*** Grenadier Sighting System (GSS): Continue with the 2-vendor Research and Development effort and the government will conduct a second user engagement, a critical design review, and further technical testing. Initiate Source Selection evaluation for possible down select going into Phase II activities. Further refine test plan, plans for fielding, new equipment training, and the deployment logistics package. Optics Upgrades: Continue engineering evaluations, verification and validation of weapon optics performance requirements. ***FY 2018 Plans:*** Grenadier Sighting System (GSS): Will finalize the Research and Development effort. Optics Upgrades: Will continue to perform engineering evaluations, verification and validation of weapon optics performance requirements.			
Title: Fire Control ***Description:*** Description: Improvement of small arms fire control ***FY 2016 Accomplishments:*** Advanced Fire Control with Precision Projectile/Dynamic Target Tracking: Supported integration Small Arms Fire Control - Squad: Continued to inform requirements for Squad weapons in the Small Arms Fire Control Capability Development Document (CDD). Small Arms Fire Control - Precision: The Ballistically Optimized Sniper Scope (BOSS) , a Precision Fire Control prototype was demonstrated to USASFC, USASS, and USMC users where it received favorable feedback. The BOSS was tested against US Army ruggedization and E3 requirements, and assessed optical parameters to inform requirements and design limitations. Optical magnification study was conducted , Performance Specification was initiated to define CDD operational requirements to material solution parameters. In addition, the BOSS was demonstrated to numerous PEO VIPs and MCOE VIP. The BOSS was designated the XM157, Fire Control System, Sniper. Transitioned within the same Program Element to EW4 in FY2017. Small Arms Fire Control Upgrades: Continued to test, evaluate and analyze ongoing and new activities to enhance small arms weapons fire control. ***FY 2017 Plans:***	0.908	1.926	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Small Arms Fire Control - Squad: Finalize Fire Control Capability Development Document (CDD), Squad requirements, including anticipated final Joint Requirements Oversight Council (JROC) approval. Will initiate contracting effort to support pre-Milestone B activities, including Acquisition Strategy and System Engineering Plan (SEP), in preparation for transition to Program of Record. Fire Control Upgrades: Continue to test, evaluate and analyze ongoing and new activities to enhance small arms weapons fire control.			
Title: Research and Analysis ***Description:*** Market Research and Cost Benefit Analysis ***FY 2016 Accomplishments:*** Continued Market Research and Cost Benefit Analysis of new small arms weapon and/or enhancements for engineering and manufacturing development. Conducted some preliminary research and analysis for the Sub-Compact effort. ***FY 2017 Plans:*** Continue Market Research and Cost Benefit Analysis of new small arms weapon and/or enhancements for engineering and manufacturing development. ***FY 2018 Plans:*** Will continue Market Research and Cost Benefit Analysis of new small arms weapon and/or enhancements for engineering and manufacturing development.	0.100	0.100	0.050
Accomplishments/Planned Programs Subtotals	22.377	11.801	6.961

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• Small Arms Improvement: *RDTE S54, Program Element 0603827A - Soldier Systems - Advanced Development*	7.153	10.554	6.851	-	6.851	10.377	9.312	15.421	19.595	Continuing	Continuing
• CSASS: *WTCV, G01507, Compact Semi-Automatic Sniper Systems*	-	0.992	-	-	-	8.310	41.360	41.360	15.050	Continuing	Continuing
• M4A1 Carbine: *WTCV, G13503, M4A1 Carbine*	31.260	40.493	43.150	-	43.150	31.619	31.538	15.731	13.417	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S63 / *Individual Weapons Engineering Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• M4 Carbine MODS: *WTCV, GB3007, M4 Carbine MODS*	27.566	29.752	31.315	-	31.315	32.551	18.524	11.728	11.618	Continuing	Continuing
• XM320 GLM: *WTCV, G01501, XM320 GLM*	13.516	3.062	4.524	-	4.524	-	-	8.000	16.000	Continuing	Continuing
• Handgun: *WTCV, G15325, Handgun*	-	2.500	8.326	-	8.326	19.572	22.884	-	-	Continuing	Continuing
• Items Less Than $5.0M: *WTCV, GL32000, Items Less Than $5M*	3.408	2.331	5.075	-	5.075	1.235	1.697	2.978	3.000	Continuing	Continuing
• Modifications Less Than $5.0M: *WTCV, GC09250, Modifications Less Than $5M*	3.737	3.157	2.219	-	2.219	5.968	5.482	3.771	3.548	Continuing	Continuing
• Soldier Enhancement Program: *RDTE S58, Program Element 0654601 - Soldier Enhancement Program*	15.334	6.776	3.353	-	3.353	3.257	3.322	3.389	3.414	Continuing	Continuing

Remarks

In support of Small Arms Requirements, components or prototypes developed in Small Arms Improvement, Project S54, Program Element 0603827A, (Budget Activity 4) is transitioned to Small Arms Improvement, Project S63, Program Element 0604601A, (Budget Activity 5) 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 production or modification program.

D. Acquisition Strategy

Primary strategy is to mature and finalize design efforts, award Research, Development, Test and Evaluation (RDT&E) hardware contracts, and test and evaluate systems that result in type classification and follow-on production contract awards.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S64 / *Common Remotely Operated Wpn Sys (CROWS)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S64: *Common Remotely Operated Wpn Sys (CROWS)*	-	3.952	4.331	22.500	-	22.500	9.300	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In support of an Army directed requirement (reference DAPR-ZA Memorandum, date 5 July 2016) to provide an increased lethality modification to the Joint Light Tactical Vehicle (JLTV), to serve as the Infantry Brigade Combat Team (IBCT) light reconnaissance vehicle, an upgraded remote weapon station will be developed that integrates a medium-caliber weapon system. Development will also begin on integration of additional effectors, such as the Stinger surface-to-air missile, to increase system lethality against ground and aerial targets.

Beginning in FY2018, $22.500 million will purchase prototypes of an improved and modified remotely operated weapon station for system and component level development, testing and qualification, to include mechanical and software integration with a 30mm autocannon and integration of Stinger surface-to-air missile.

The Maneuver Support Center of Excellence (MSCoE) at FT Leonard Wood, MO (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 requirements for the CROWS are identified in the CROWS Increment II Capability Development Document (CDD). CROWS Increment II capability improvements will bolster overall situational awareness, survivability and lethality. Increment II 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.

Obsolescence and Increment II requirements 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)	FY 2016	FY 2017	FY 2018
Title: Medium Caliber Remote Weapon Station (RWS) Development	-	-	16.875

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S64 / *Common Remotely Operated Wpn Sys (CROWS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2018 Plans: Will purchase prototypes and design improvements for a remote weapon station that integrates a medium-caliber weapon system. Contract efforts will culminate in delivery of prototypes of a modified remote weapon station for qualification testing in the following year.			
Title: Technology Refresh and Obsolescence ***Description:*** Description: Technology Refresh and Obsolescence ***FY 2016 Accomplishments:*** Contractor initiated the design and fabrication of an improved Thermal Imaging Module (TIM) with a smaller pixel pitch and higher pixel density focal plane array, and enhanced video processing capability allowing the module to provide a wider field of view for increased situational awareness. ***FY 2017 Plans:*** Contractor continues the development of system enhancements addressing obsolescence issues, user community feedback, OMAR recommendations, reliability improvements and increased situational awareness and targeting capability.	1.569	0.920	-
Title: Engineering Support ***Description:*** Description: Government Engineering Support. ***FY 2016 Accomplishments:*** Provided engineering support and oversight of design improvements and contractor performance; development of enhanced sensors, infrared sights, video capabilities and situational awareness. Developed training and technical publications associated with the system improvements. ***FY 2017 Plans:*** Continue to provide engineering support and oversight of design improvements and contractor performance of Technology Refresh efforts and enhanced sensor development. Begin requirements distillation, performance tradeoffs, feasibility studies and analysis of alternatives for system enhancements supporting Increment II requirements, user feedback, and reliability improvements. ***FY 2018 Plans:*** Will provide engineering support and oversight of the development of an improved remote weapon station that integrates a medium-caliber weapon system and an integration kit for additional effectors, such as the Stinger surface-to-air missile.	1.009	1.656	3.500
Title: Test and Evaluation	0.195	0.651	0.625

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S64 / *Common Remotely Operated Wpn Sys (CROWS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: Description: Test and Evaluation ***FY 2016 Accomplishments:*** Conducted the initial developmental testing and evaluation of improvements and develop testing and evaluation criteria and documentation for the Thermal Imaging Module. ***FY 2017 Plans:*** Continue developmental testing and evaluation of system enhancements addressing obsolescence issues, user community feedback and reliability improvements. Begin testing sensor enhancements improving situational awareness and targeting capability. Develop test and evaluation criteria and documentation for the system enhancements supporting Increment II requirements, user feedback and reliability improvements. ***FY 2018 Plans:*** Will begin planning and documentation for government testing and evaluation of prototype remote weapon stations that integrate a medium-caliber weapon system and an integration kit for additional effectors, such as the Stinger surface-to-air missile.			
Title: Program Management ***Description:*** Description: Program Management. ***FY 2016 Accomplishments:*** Provided oversight of product design and development, to include engineering support, contract actions and test activities throughout the fiscal year. Program management office facilitated test events at various government laboratories to test prototype units of the improved fire control unit processor and system slip ring, in order to quantify performance with the most current sensors and effectors, and managing the life cycle of the program to include future acquisition and sustainment plans. ***FY 2017 Plans:*** Provide oversight of product design and development, to include engineering support, contract actions and test activities throughout the fiscal year. Additionally, provide program oversight of the system enhancements supporting Increment II requirements. Program management office facilitate test events at various government laboratories to test prototype components, sub-system and systems. Continue to manage the life cycle of the program to include future acquisition and sustainment plans. ***FY 2018 Plans:*** Will provide program management oversight of development, testing and evaluation of an improved remote weapon station that integrates a medium-caliber weapon system and an integration kit for additional effectors, such as the Stinger surface-to-air missile.	1.179	1.104	1.500
Accomplishments/Planned Programs Subtotals	3.952	4.331	22.500

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S64 / *Common Remotely Operated Wpn Sys (CROWS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• CROWS (G04700, W&TCV): *W&TCV, G04700, CROWS*	40.500	25.164	0.750	-	0.750	2.500	20.000	20.000	-	0.000	108.914
• LW 30MM CANNON (0604601FI2, RDT&E): *RDT&E, 0604601F12, 30MM CANNON*	-	-	5.500	-	5.500	-	-	-	-	0	5.500
• GUN AUTOMATIC 30MM M230: *W&TCV, G13800, M230*	-	-	-	-	-	7.500	20.000	10.000	-	0	37.500

Remarks

D. Acquisition Strategy

The modified medium-caliber remote weapon station that will begin development in FY2018 shall use an incremental acquisition approach in its strategy. The first increment will be part of an Urgent Materiel Release and will modify the legacy M153 Common Remotely Operated Weapon Station (CROWS) in order to integrate the XM914 30mm autocannon. The second increment will require further design and development changes, upgrade the optics on the remote weapon station in order to increase the target identification range of the station to match the capability of the weapon, and incorporate a coaxial machine gun as a secondary weapon system.

The integration of additional effectors, such as the Stinger surface-to-air missile system, will leverage prior efforts to integrate the Javelin missile on the remote weapon station.

The legacy Common Remotely Operated Weapon Station (CROWS) used a single-step acquisition approach in its strategy. The CROWS achieved Type Classification Standard in 3QFY2011, Full Materiel Release in 3QFY2012 and Full Rate Production in 4QFY2012, in accordance with the Capability Production Document (CPD) Increment I, as clarified in June 2009. Capability Development Document Increment II was approved in October 2015 addressing requirements for the next generation of CROWS.

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). The program supports new and emerging urgent requirements like the integration of the Mine Resistant Ambush Protected (MRAP) family of vehicles, ground combat systems, Joint Lightweight Tactical Vehicles (JLTV) and fixed site mounting systems to support Integrated Base Defense (IBD).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S64 / *Common Remotely Operated Wpn Sys (CROWS)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	PM Soldier Weapons : Picatinny Arsenal, NJ	0.462	1.179	Feb 2016	1.104	Feb 2017	1.500	Feb 2018	-		1.500	Continuing	Continuing	0.000
		Subtotal	0.462	1.179		1.104		1.500		-		1.500	-	-	0.000

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total 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	9.145	1.569	Sep 2016	0.920	Jun 2017	-		-		-	Continuing	Continuing	0.000
Medium Caliber RWS Development	C/FFP	TBD : TBD	0.000	-		-		16.875	Mar 2018	-		16.875	Continuing	Continuing	0.000
		Subtotal	9.145	1.569		0.920		16.875		-		16.875	-	-	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	ARDEC : Picatinny Arsenal, NJ	0.748	1.009	Feb 2016	1.656	Feb 2017	3.500	Feb 2018	-		3.500	Continuing	Continuing	0.000
		Subtotal	0.748	1.009		1.656		3.500		-		3.500	-	-	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning and Execution	Various	Various : Multiple	0.127	0.195	Feb 2016	0.651	Feb 2017	0.625	Feb 2018	-		0.625	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S64 / *Common Remotely Operated Wpn Sys (CROWS)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.127	0.195		0.651		0.625		-		0.625	-	-	0.000

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.482	3.952		4.331		22.500		-		22.500	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S64 / *Common Remotely Operated Wpn Sys (CROWS)*

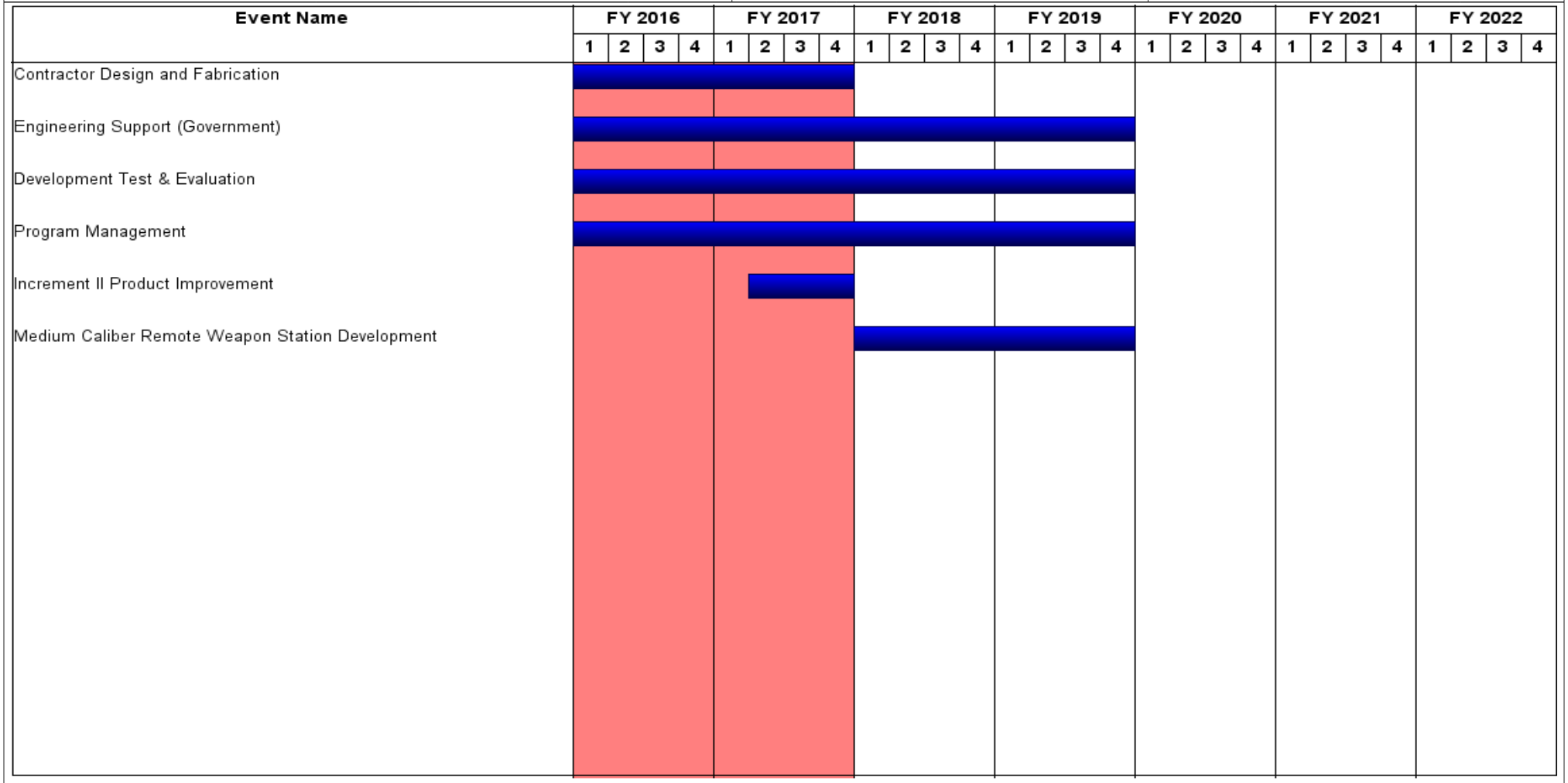

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S64 / *Common Remotely Operated Wpn Sys (CROWS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Contractor Design and Fabrication	1	2016	4	2017
Engineering Support (Government)	3	2015	4	2019
Development Test & Evaluation	3	2015	4	2019
Program Management	3	2015	4	2019
Increment II Product Improvement	2	2017	4	2017
Medium Caliber Remote Weapon Station Development	1	2018	4	2019

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) S70 / *Personnel Recovery Support System (PRSS)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S70: *Personnel Recovery Support System (PRSS)*	-	1.208	1.121	1.330	-	1.330	1.149	1.176	0.651	0.650	0.000	7.285
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

This project provides the continued maturation of PRSS products that enable operations to report and locate isolated, missing, detained or captured 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 the demonstration and testing of a production representative encrypted Personnel Recovery Device (PRD) that operates over a secure architecture.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Development of Personnel Recovery Support System (PRSS)	1.208	1.121	1.330
Description: 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. ***FY 2016 Accomplishments:*** Conducted OCONUS Over-The-Air test of the secure waveform for the PRD using functioning PRD prototype. ***FY 2017 Plans:*** Perform end-to-end testing to exercise all aspects of the PRSS communications system worldwide. Develop and test enhancements to personnel recovery equipment for improved operational capability. ***FY 2018 Plans:*** Conduct a Limited User Test, and an Operational Test of PRDs in support of a full rate production decision.			
Accomplishments/Planned Programs Subtotals	1.208	1.121	1.330

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** S70 / *Personnel Recovery Support System (PRSS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• Personnel Recovery Support Sys OPA: *Other Procurement, Army, G01101-Personnel Recovery Support System (PRSS)*	7.733	10.856	5.390	-	5.390	6.630	5.518	5.957	6.099	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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604601A / *Infantry Support Weapons*	Project (Number/Name) VS5 / *Soldier Protective Equipment*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
VS5: *Soldier Protective Equipment*	-	14.659	2.141	1.758	-	1.758	6.122	6.856	8.582	9.943	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding supports engineering and manufacturing development and full rate production decision reviews of Soldier Protective Equipment. It leverages advancements in technology to continue improvements to hard and soft body armor components, helmets and other personal protective equipment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Soldier Protective Equipment	14.659	2.141	1.758

Description: Funding line established in FY12. Effort was previously executed in Program Element 0604601 S60. The objective of this effort is to increase the Warfighter lethality and mobility, by optimizing Soldier protection while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).

FY 2016 Accomplishments:

Continued system level development and integration of SPS subsystems and components transitioned from VS4 Advanced Component Development and Prototypes (ACD&P). Conducted system-level Initial Operating Test (IOT)/Live Fire testing of SPS VTP/TEP subsystems to support Full-Rate Production (FRP) decisions. Conducted IHPS DT III (ballistic, non-ballistic & human factors testing). Conducted Milestone C decision reviews for the IHPS / TCEP subsystems. Completed LRIP FAT testing for the VTP/TEP systems. Continued efforts to characterize and increase durability and functional service life of all PPE.

FY 2017 Plans:

Continued system level development and integration of SPS subsystems and components transitioned from VS4 Advanced Component Development and Prototypes (ACD&P). Continuation of Live Fire testing of the Soldier Protection System (SPS) Vital Torso Protection (VTP) subsystem to support Full-Rate Production (FRP) decisions. Conducted Torso and Extremity Protection (TEP) Fit & Sizing / Human Factors Evaluation (HFE) 2 Integration / Cold & Tropical regions testing. Conduct IHPS First Article Test (FAT), Blast, Ground Limited User Test (LUT), and Live Fire Test HFEs for improved personal protective equipment and a follow-on Full Up System Level test. Continued efforts to characterize and increase durability and functional service life of all PPE.

FY 2018 Plans:

Conduct FAT and System Level Testing for the VTP systems. Prepare for the Full Rate Production (FRP) decisions for VTP / IHPS by preparing the Army Evaluation Command (AEC) / Director of Operational Test and Evaluation (DOTE) Live fire Test reports.. Continue to evaluate and develop system and subsystem technologies across the PPE portfolio (extremities, torso and vital torso, head, eye and face protection) 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 development of materials and

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604601A / *Infantry Support Weapons*	**Project (Number/Name)** VS5 / *Soldier Protective Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
technologies to reduce SPS weight and bulk at the system, subsystem and component level and continue efforts to characterize and increase durability and functional service life. Complete the testing (cold weather, durability, etc.) and qualification of the Transition Combat Eye Protection (TCEP) to allow its inclusion on the Authorized Protective Eyewear List (APEL).			
Accomplishments/Planned Programs Subtotals	14.659	2.141	1.758

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• VS4 6.4 RDTE: *RDTE, 0603827A.VS4, Soldier Protective Equipment*	5.194	16.294	10.281	-	10.281	8.224	2.869	4.496	4.967	0.000	52.325
• OMA: *OMA, 121017, Central Funding & Fielding*	30.000	93.330	74.486	-	74.486	78.550	78.794	78.540	78.578	0.000	512.278

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.

E. Performance Metrics

N/A