Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army											Date: February 2018	

Appropriation/Budget Activity				R-1 Program Element (Number/Name)								
2040: Research, Development, Test & Evaluation, Army I BA 5: System Development & Demonstration (SDD)				PE 0604710A I Night Vision Systems - Eng Dev								

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	76.491	108.504	139.614	-	139.614	82.845	54.135	43.435	41.533	Continuing	Continuing
L67: Soldier Night Vision Devices	-	23.054	32.504	60.060	-	60.060	29.079	20.416	18.259	18.164	Continuing	Continuing
L70: Night Vision Dev Ed	-	37.346	52.900	53.737	-	53.737	40.075	22.855	14.071	9.300	Continuing	Continuing
L75: Profiler	-	3.736	0.000	0.000	-	0.000	0.000	0.000	0.000	2.107	0.000	5.843
L76: Dismounted Fire Support Laser Targeting Systems	-	5.562	14.957	15.341	-	15.341	5.880	5.292	5.496	5.921	Continuing	Continuing
L79: Joint Effects Targeting Systems (JETS)	-	6.793	8.143	10.476	-	10.476	7.811	5.572	5.609	6.041	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides night vision/reconnaissance, surveillance and target acquisition technologies required for United States defense forces to engage enemy forces twenty-four hours a day under conditions of degraded visibility due to darkness, adverse weather, battlefield obscurants, foliage and man-made structures. These developments and improvements to high performance night vision electro-optics, radar, laser, and thermal systems and integration of related multi-sensor suites will enable near to long range target acquisition, identification and engagement to include significant fratricide reduction, which will improve battlefield command and control in "around-the-clock" combat operations.

Project EQ9 focuses on a kit of electronic devices that acquires, collects, and transmits data to provide near real time feedback in order to validate, follow, locate, or track a target (i.e., tagging, tracking, and locating (TTL)). Using electronic audio and/or video recorders, information obtained will validate movement and identify targets. In addition, threat monitoring can be integrated into existing operational tools, help to paint a clearer picture of the battlefield, pinpoint possible target locations, and identify and exploit enemy movements and patterns. Close Access Target Reconnaissance (CATR) has been fielded since 2005 as a Quick Reaction Capability (QRC) program.

Project L67 develops, improves and miniaturizes high performance night vision electro-optics, thermal and laser systems. It also provides for systems integration of related multi-sensor suites to enable near to long-range target acquisition and engagement as well as improved battlefield command and control in around-the-clock combat operations. It focuses on adapting demonstrated technologies that bring improvements to the dismounted Soldiers' equipment. This project develops or enhances equipment that provides the individual Soldier's day/night situational awareness and individual targeting capability. This project includes cost associated with efforts for integration and interface of products on Soldiers head, body and weapons.

Project L70 focuses on night vision, reconnaissance, surveillance and target acquisition (RSTA) sensor and suites of sensors to provide well-defined surveillance and targeting capabilities for a variety of Current, Modular, and Future Force platforms. This project includes: 3rd Generation Forward Looking Infra-Red (3GEN FLIR) B-Kit development activities, the 3GEN Long Range Advanced Scout Surveillance System (LRAS3) Modification Work Order (MWO) to integrate 3GEN FLIR B-Kit, and

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army		Date: February 2018
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the Assistant Secretary of the Army for Acquisition, Logistics, and Technology ASA(ALT) Common Operating Environment (COE) effort to meet sensor interoperability requirements and improve the soldier-machine interface of the Program of Record (POR).

Project L75 focuses on development of Profiler Block enhanced capabilities for meteorological (MET) measurement sensors and data. Improvements have reduced the footprint (less soldiers/vehicles) and complexity of the system, improved performance (accuracy), improved survivability, connectivity, no balloon sensor, multiple initialization data, and terrain visualization. The improved MET message data will increase lethality by enabling artillery a greater probability of first round hit with indirect fire systems. Profiler Block III provides a networked laptop configuration while further reducing the system's logistics footprint with the elimination of the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) mounted shelter and trailer located in the Tactical Operations Center (TOC). The Profiler Virtual Module (PVM), a product improvement to the Block III, concept includes the following updates: update of weather model; update of software architecture removing legacy Block I code and creating a modular framework; development in conjunction with the Advanced Field Artillery Tactical Data System (AFATDS) program including AFATDS, to provide increased interoperability and usability; and to enable operation of the Profiler system in a virtual machine for use in the Common Operating Environment (COE) versions 2,3,4,and 5. This concept is a flexible approach that supports use of existing Block III hardware, increased accuracy during technical refresh of hardware with higher performance computers, and virtualization on the Command Post Computing Environment (CP CE) server.

Project L76 matures technologies and capabilities which benefit the Lightweight Laser Designator Rangefinder (LLDR, AN/PED-1, AN/PED-1A, and AN/PED-1B) and the Joint Effects Targeting System (JETS). These precision targeting and next generation systems are used by dismounted Soldiers to locate, identify, and target enemy assets. This project focuses on reducing size, weight, power and cost, improving imaging performance, and increasing targeting accuracy. Targeting accuracy improvements will focus on developing and integrating affordable, non-magnetic, high accuracy, full-time (24/7), and all weather Precision Azimuth and Vertical Angle Measurement (PAVAM) devices, with reduced size, weight, and power characteristics into the LLDR system. Long term goals include improving current celestial navigation systems to increase operational availability, developing precision targeting capabilities that will operate in a Global Positioning System (GPS) denied environment to improve situational awareness, and to integrate Military Global Positioning System (GPS) User Equipment (M-Code) (next-generation GPS) receivers into LLDR and JETS, when available.

Project L79 focuses on the Joint Effects Targeting System (JETS). JETS is an Army program with joint information (Air Force and Marine Corps). JETS will meet the one-man, hand-held precision targeting gap identified by the Fires Center of Excellence (FCOE). JETS is a light-weight, handheld system that will provide the single dismounted observer and Joint Terminal Attack Controller (JTAC) with a common, enhanced day and night thermal capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets. JETS Target Location and Designation System (TLDS) will be able to interface with existing and future Forward Entry Systems (FESs) and operate in environments where global positioning system (GPS) capabilities are degraded or denied including the integration of military GPS user equipment (M-Code) GPS receivers, when they become available. This project will address continued development and integration of improved precision targeting components to reduce size, weight, power, and cost of systems for dismounted precisions Fires mission.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army				**Date:** February 2018
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*			**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*	

B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	84.519	108.504	105.417	-	105.417
Current President's Budget	76.491	108.504	139.614	-	139.614
Total Adjustments	-8.028	0.000	34.197	-	34.197
• Congressional General Reductions	-0.038	-			
• Congressional Directed Reductions	-5.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.990	-			
• Adjustments to Budget Years	-	-	34.197	-	34.197

Change Summary Explanation

Fiscal Year 2019: Program increase of $36.705 million to Project L67 for Soldier Night Vision Devices. Program decreases of $1.888 million to L70 Night Vision Dev Ed, $0.336 million to L76 - Dismounted Fire Support Laser Targeting Systems, and $0.284 million to L79 - Joint Effects Targeting Systems (JETS).   Both L75 Profiler and EQ9 - CATR remained unchanged at $0.000 million.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018	
Appropriation/Budget Activity 2040 I 5				**R-1 Program Element (Number/Name)** PE 0604710A I *Night Vision Systems - Eng Dev*					**Project (Number/Name)** L67 I *Soldier Night Vision Devices*		

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
L67: *Soldier Night Vision Devices*	-	23.054	32.504	60.060	-	60.060	29.079	20.416	18.259	18.164	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops, improves and miniaturizes high performance night vision electro-optics, thermal and laser systems. It also provides for systems integration of related multi-sensor suites to enable near to long-range target acquisition and engagement as well as improved battlefield command and control in around-the-clock combat operations. It focuses on adapting demonstrated technologies that bring improvements to the dismounted Soldiers' equipment. This project develops or enhances equipment that provides the individual Soldier's day/night situational awareness and individual targeting capability. This project includes cost associated with efforts for integration and interface of products on Soldiers head, body and weapons.

B. Accomplishments/Planned Programs ($ in Millions)

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Family of Weapon Sights (FWS)	23.054	24.057	20.722	-	20.722

Description: FWS is a family of weapon sights that enable combat forces to acquire and engage targets with small arms and to conduct surveillance and fire control under day/night obscurants, no-light, and adverse weather conditions. The family utilizes advancements in thermal and low light level sensors to produce Individual (I), Crew-Served (CS), and Sniper (S) weapon sights operable in-line with a day optic or in stand-alone mode. This project integrates smaller pixel focal plane arrays in multiple large format sizes to improve sensitivity, clarity, and range, while simultaneously reducing the size, weight and power consumption of all variants. The FWS-I variant is a weapon mounted long-wave infrared sensor that enables Soldiers to fire quickly and accurately from any carry position and with significantly reduced exposure to enemy fire by providing a wireless zeroed weapon aimpoint in the Soldier's Enhanced Night Vision Goggle III (ENVG III) goggle or day display on the helmet. Leveraging the success of the Individual variant development, the FWS-CS variant operates as the primary sight; it includes a wireless Helmet Mount Display (HMD) and provides the Soldier with input from a laser range finder device, resulting in a more accurate aimpoint that adjusts automatically for range, ammunition characteristics, and vertical angle. The FWS-S variant mounts in-line with the Sniper's direct view optic providing a thermal imagery capability to the host weapon at the weapon's maximum effective range, plus 20% overmatch. FWS-S provides Snipers a large format display with increased pixel density that enables accurate long range engagements while maintaining day sight, extending the lethality and provide exceptional observation. The modified FWS- CS Light program will leverage the advancements in technology from the FWS and will support

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 I 5	R-1 Program Element (Number/Name) PE 0604710A I *Night Vision Systems - Eng Dev*	Project (Number/Name) L67 I *Soldier Night Vision Devices*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Combat support and Service Support units with a FWS -CS Light. This also supports Thermal Weapon Sight obsolesce through the Future Years Defense Plan. ***FY 2018 Plans:*** Continue FWS-CS and FWS-S Engineering and Manufacturing Development (EMD) to design, build and deliver prototype systems for Government and Contractor testing. Complete FWS-CS and FWS-S EMD testing in preparation for Low Rate Initial Production (LRIP). Improve the manufacturing process of uncooled Focal Plane Arrays (FPA) and micro-Organic Light-Emitting Diode (OLED) displays that are key components of FWS ***FY 2019 Base Plans:*** Complete FWS-S and FWS-CS Engineering and Manufacturing Development (EMD) testing in preparation for Low Rate Initial Production (LRIP). Improve the manufacturing process of uncooled FPA and micro-Organic Light-Emitting Diode (OLED) displays that are key components of FWS. Both FWS-S and FWS-CS will achieve MS C decision approval to enter LRIP Phase of the program. FWS-CS Light contract award for EMD to redesign, build and deliver prototypes systems for government and contractor testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This decrease is due FWS-CS Light contract award for Engineering and Manufacturing Development to redesign, build and deliver prototypes systems for government and contractor testing.					
Title: Small Tactical Optical Rifle Mounted (STORM) II ***Description:*** The AN/PSQ-23 STORM Micro-Laser Range Finder (MLRF) is a weapon-mounted multi-function laser system. It provides an eye safe laser range finder, digital compass, Infrared (IR) and visible aiming lights, and an IR illuminator for far target location with continuous range, accuracy, weight and power performance enhanced capabilities. Funding supports qualifying smaller, lighter, and a less expensive STORM variant (STORM II) for Soldiers. ***FY 2018 Plans:*** Multiple contracts will be awarded to procure competing, updated STORM systems, STORM II. STORM II test systems will capitalize on improved laser and electro-optical technologies to develop a lighter, lower cost, multi-function laser system for the individual Soldier. This effort incrementally funds the procurement and qualification of STORM II test systems for future procurements. ***FY 2019 Base Plans:***	-	4.850	7.128	-	7.128

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018	
Appropriation/Budget Activity 2040 *I* 5		**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*		**Project (Number/Name)** L67 *I Soldier Night Vision Devices*	

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
This effort continues to fund the qualification of STORM II test systems in support of future procurements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This increase is due to maturing research and development of STORM II test systems laser and electro-optical technologies for future procurements.					
Title: Family of Vision and Mobility Capabilities (FVMC) ***Description:*** The FVMC (Day Display) is the next generation vision system for day and night that will reduce the Soldier's burden and allow hands free operation. The FVMC will provide automatic adjustment of imagery and matched sensor fields of view. The FVMC will provide day/night Rapid Target Acquisition (RTA) capability by interfacing with FWS-I, day/night data display for the Soldier Network Warrior End User Device/Computer (EUD), and ability to send/receive data to the EUD to support advanced EUD applications to process the sensor video, integrate it with external data sources, and produced advanced processed imagery with overlay data display. ***FY 2018 Plans:*** Initiate development of system prototypes for the FVMC. ***FY 2019 Base Plans:*** Initiate development of system prototype for FVMC; Finalize Interface Control Document (ICD) to support interoperability between FVMC systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This increase is due to maturing research and development of system prototype for FVMC Finalize ICD interoperability in preparation for subsequent Low -Rate Initial Production.	-	2.100	12.210	-	12.210
Title: Pre-Shot Threat Detection (PTD) ***Description:*** The PTD is a compact, lightweight, mounted multi-function laser system designed to detect threat Snipers, Forward Observers and Scouts equipped with direct view optics. The PTD functions include laser illumination, optical augmentation and pointing. The PTD capabilities will be developed in two parallel paths to allow for technology insertions when available. PTD (Overt) provides the maneuver element with an initial solution (overt) that improves the Soldier?s capability to conduct pre-shot threat detection, obtain situational awareness, and verification of threat. PTD combines the capability of the Multi-Function Aiming Light and the Green Laser Interdiction System, thereby reducing redundancy and the total load. PTD (Covert) provides the maneuver element with an enhanced solution (covert) that improves the Soldier?s capability to conduct pre-shot	-	1.497	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
threat detection, obtain situational awareness, and verification of threat, while remaining undetected by enemy optics. ***FY 2018 Plans:*** Finalize production representative system and conduct Limited User Tests (LUT) for the Overt PTD prototypes. Draft and release RFP. Further develop covert capability. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This decrease is due PTD considered once a stand alone system is now a capability of the Family of Target Acquisition Laser (FTAL) and FY 2019 funding was moved to support the Small Tactical Optical Rifle Mounted II system.					
Title: Enhanced Night Vision Goggle - Binocular (ENVG-B) *Description:* The ENVG-B system is a modular helmet-mounted, passive electro-optical night vision and long wave infrared (LWIR) imaging device in a binocular configuration. The system integrates dual Image Intensification (I2) sensors with the LWIR imagery into a single viewing display. The LWIR sensor provides the Soldier with the capability to rapidly detect and recognize human-sized targets in adverse weather and obscurants and in varying light conditions. The dual I2 sensors provide the Soldier with depth perception for ease of low-light level maneuvers and the ability to detect rifle-mounted aiming lights to engage targets. The ENVG-B can also be operated in a monocular configuration by moving one of the two individually rotating monoculars. The ENVG-B has a near infrared (NIR) emitting light source that provides illumination for close-up viewing. The ENVG-B mounts on current Soldier equipment, including the Advanced Combat Helmet (ACH), the Enhanced Combat Helmet (ECH) and Integrated Head Protection System (IHPS). The ENVG-B has a multi-point wireless interface to the FWS-I weapon mounted LWIR sensor and to Nett Warrior in order to support information assurance requirements. The ENVG-B wirelessly operates with the FWS-I to provide Rapid Target Acquisition (RTA) capability. RTA is the capability to view the boresighted/zeroed weapon sight reticle in the ENVG-B display, enabling the Soldier to accurately engage targets without having to bring the weapon to eye level and without the use of active lasers, all while remaining in defilade. ***FY 2019 Base Plans:*** FY 2019 will begin with the ENVG-B Engineering and Manufacturing Development (EMD) contract award. Two vendors will begin designing, building and deliver prototype systems for Government and Contract Testing. EMD Government testing will include an Engineering Characterization Test (ECT), a Reliability Growth Test - 1	-	-	20.000	-	20.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
(RGT-1), a Production Quality Test - Government (PQT-G) and a Limited User Test (LUT). ENVG-B EMD testing is in preparation for Low Rate Initial Production (LRIP).					
FY 2018 to FY 2019 Increase/Decrease Statement: ENVG-B award will be a full and open competition which will require Research Development Test and Evaluation funding for Engineering and Manufacturing Development to qualify at least two vendors.					
Accomplishments/Planned Programs Subtotals	23.054	32.504	60.060	-	60.060

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• VT7: *Night Vision Systems Advanced Development*	9.930	12.347	7.350	-	7.350	6.529	6.574	7.184	7.153	Continuing	Continuing
• K36400: *Helmet Mounted Enhanced Vision Devices (HMEVD)*	118.187	144.644	109.724	0.027	109.751	105.661	58.047	61.783	116.345	Continuing	Continuing
• K22002: *Family of Weapons Sights - Inidividual (FWS-I)*	49.536	49.887	94.932	-	94.932	81.544	79.213	19.124	22.473	Continuing	Continuing
• K35110: *Small Tactical Optical Rifle Mounted (STORM)*	18.843	14.007	22.882	0.060	22.942	22.906	23.218	26.825	26.389	Continuing	Continuing
• B53800: *Laser Target Locators (LTL)*	33.983	22.226	34.960	0.436	35.396	20.138	26.231	21.136	24.072	Continuing	Continuing
• K22003: *Family of Weapons Sights - Crew Serve (FWS-CS)*	-	1.033	30.581	0.525	31.106	77.345	84.818	93.886	75.758	Continuing	Continuing
• K36400: *Helmet Mounted Enhanced Vision Devices*	118.187	144.644	109.724	0.027	109.751	105.661	58.047	61.783	116.345	0.000	714.418
• K22004: *FWS-SNIPER*	-	8.185	15.224	-	15.224	25.800	16.001	1.350	1.364	0.000	67.924

Remarks

D. Acquisition Strategy

The various developmental programs in this project continue to exercise competitively awarded contracts using best value source selection procedures.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army		Date: February 2018
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PROGRAM MGMT	MIPR	Various : Various	5.010	3.087	Feb 2017	3.005	Feb 2018	0.110	Feb 2019	-		0.110	Continuing	Continuing	-
Subtotal			5.010	3.087		3.005		0.110		-		0.110	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Weapon Sights-Crew Served (FWS-CS)	C/CPFF	DRS RSTA, Inc BAE Systems : Dallas, TX/Nashua, NH	-	11.262	Jan 2017	14.499	Dec 2017	-		-		-	0.000	25.761	-
Family of Weapon Sights-Sniper (FWS-S)	Allot	N2 Imaging Systems : Irvine, CA	-	4.122	Jan 2017	0.607	Dec 2017	-		-		-	0.000	4.729	-
Family of Vision and Mobility Capabilities (FVMC)	MIPR	NVESD : Ft Belvoir, VA	-	-		2.100	Feb 2018	10.684	Feb 2019	-		10.684	0.000	12.784	Continuing
Pre-Shot Threat Detection	Various	Various : Various	-	-		0.847	Feb 2018	-		-		-	0.000	0.847	Continuing
STORM II Test Systems (Vendor A)	C/FFP	TBD : TBD	-	-		2.125	Feb 2018	3.314	Jan 2019	-		3.314	0.000	5.439	Continuing
STORM II Test Systems (Vendor B)	C/FFP	TBD : TBD	-	-		2.125	Feb 2018	3.314	Jan 2019	-		3.314	0.000	5.439	Continuing
Enhanced Night Vision Google - Binocular (ENVG-B) (Vendor A)	C/CPFF	TBD : TBD	-	-		-		6.500	Feb 2019	-		6.500	0.000	6.500	Continuing
Enhanced Night Vision Google - Binocular (ENVG-B) (Vendor B)	C/CPFF	TBD : TBD	-	-		-		6.500	Feb 2019	-		6.500	0.000	6.500	Continuing
Thermal Weapon Sights (TWS) (Vendor A)	C/CPFF	TBD : TBD	-	-		-		6.100	Feb 2019	-		6.100	0.000	6.100	Continuing
Thermal Weapon Sights (TWS) Vendor B)	C/CPAF	TBD : TBD	-	-		-		6.100	Feb 2019	-		6.100	0.000	6.100	Continuing
Subtotal			-	15.384		22.303		42.512		-		42.512	0.000	80.199	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army		Date: February 2018
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Matrix Support	MIPR	NVESD : Ft Belvoir, VA	5.241	1.549	Feb 2017	2.429	Feb 2018	6.228	Feb 2019	-		6.228	Continuing	Continuing	-
		Subtotal	5.241	1.549		2.429		6.228		-		6.228	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test Support Activity	MIPR	Army Test and Evaluation Command : Various	47.159	3.034	Jun 2017	4.767	Jun 2018	11.210	Jun 2019	-		11.210	Continuing	Continuing	-
		Subtotal	47.159	3.034		4.767		11.210		-		11.210	Continuing	Continuing	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	57.410	23.054	32.504	60.060	-	60.060	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
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Event Name	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
FWS-CS Engineering and Manufacturing Development	EMD ▬▬▬▬▬▬▬▬	▬▬▬▬▬▬▬	▬				
FWS-CS MS C			▲3 MS C				
FWS-S Engineering and Manufacturing Development	EMD ▬▬▬▬▬▬▬▬	▬▬▬▬▬▬▬	▬				
FWS-S MS C			▲4 MS C				
Family of Vision and Mobility Capabilities (FVMC)			▬▬▬ Development	▬▬▬▬▬▬▬	▬▬▬▬▬▬▬	▬▬▬▬	
LTLM II Development and Operational Testing		▬▬					
STORM II Contract Award - Qualification Systems		▲1 Contract Award					
STORM II Developmental and Operational Testing			▬▬▬				
PTD Overt Technology Development	▬▬▬▬▬▬▬▬	▬▬▬▬▬					
PTD Limited User Testing (LUT)		▬▬▬					
ENVG-B Engineering and Manufacturing Development			▲5 Contract Award				
ENVG-B Developmental and Operational Testing			▬▬▬▬	▬▬▬▬▬▬▬	▬▬▬▬▬▬▬	▬▬	
Thermal Weapon Sight (TWS) Improvements			▲2 Contract Award				

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

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / *Night Vision Systems - Eng Dev*	Project (Number/Name) L67 / *Soldier Night Vision Devices*

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TWS Engineering and Manufacturing Development										Development																		
Thermal Weapon Sight															LRIP													
Next Generation Smart Sensor (NGSS)																									6 Contract Award			
NGSS Engineering and Manufacturing Development																										Development		

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 *I* 5	**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 *I Soldier Night Vision Devices*

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ENVG Production Qualification Testing (PQT)	3	2014	3	2015
FAMILY OF WEAPON SIGHTS (FWS)	2	2011	2	2011
FWS-CS Engineering and Manufacturing Development	3	2016	2	2019
FWS-CS MS C	2	2019	2	2019
FWS-S Engineering and Manufacturing Development	3	2016	2	2019
FWS-S MS C	2	2019	2	2019
Family of Vision and Mobility Capabilities (FVMC)	3	2019	4	2022
LTLM II Development and Operational Testing	4	2017	1	2018
SMALL TACTICAL OPTICAL RIFLE MOUNTED (STORM)	2	2011	2	2011
STORM II Contract Award - Qualification Systems	3	2018	3	2018
STORM II Developmental and Operational Testing	1	2019	4	2019
PTD Overt Technology Development	4	2016	3	2018
PTD Limited User Testing (LUT)	2	2018	1	2019
ENVG-B Engineering and Manufacturing Development	3	2019	3	2019
ENVG-B Developmental and Operational Testing	3	2019	2	2022
Thermal Weapon Sight (TWS) Improvements	2	2019	2	2019
TWS Engineering and Manufacturing Development	2	2019	3	2020
Thermal Weapon Sight	3	2020	3	2021
Next Generation Smart Sensor (NGSS)	2	2023	2	2023
NGSS Engineering and Manufacturing Development	2	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018	

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COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
L70: *Night Vision Dev Ed*	-	37.346	52.900	53.737	-	53.737	40.075	22.855	14.071	9.300	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project performs Engineering and Manufacturing Development (EMD) on high performance night vision, Reconnaissance, Surveillance, and Target Acquisition (RSTA) systems and other related systems that allow forces to locate and track enemy units in day, night, and all battlefield conditions, and through natural and man-made structures and obscurants. It also develops and integrates suites of these sensors to provide well-defined surveillance and targeting capabilities, as well as architectures for these sensors to communicate automatically. These efforts focus on meeting the requisite night vision and RSTA capabilities required for evolving Current Force, Modular Force, and Future Force systems.

The project supports the 3rd Generation Forward Looking Infrared (3GEN FLIR) B-Kit EMD program, which incorporates the next generation of forward looking infrared technologies. The 3GEN FLIR EMD program will develop a common 3GEN FLIR B-Kit for integration into US Army FLIR sensor systems in accordance with the approved Improved Forward Looking Infrared (I-FLIR) Capability Development Document (CDD). The common 3GEN FLIR B-Kit prescribed by the I-FLIR CDD will allow the Army to achieve economies of scale and avoid duplicative engineering and development costs. As a result, 3GEN FLIR capabilities can be delivered at a lower cost to the Abrams, Bradley, and Long Range Advanced Scout Surveillance System (LRAS3), while potentially leveraging 3GEN FLIR components for airborne applications. The 3GEN FLIR B-Kit provides Mid Wave Infrared and Long Wave Infrared digital video and the electronic interfaces required to integrate the 3GEN FLIR technology with the host platform sensor. When integrated in current sensor packages, 3GEN FLIR technology enhances the war-fighters' survivability and lethality through increased identification range performance, while enabling the detection of difficult or obscured targets and faster threat detection through automated processes. The 3GEN FLIR B-Kit EMD program is also a key element in maintaining the Army's FLIR industrial base.

The project supports LRAS3 Modification Work Order (MWO) to integrate 3GEN FLIR B-Kit. The LRAS3 MWO effort includes integration of 3GEN FLIR B-Kit technology, an Inertial Measurement Unit (IMU), and an M-code Global Positioning System (GPS) receiver. Collectively, these capabilities will improve the Far Target Location (FTL) accuracy of the LRAS3 and enhance the scout's survivability and lethality through increased detection, recognition and identification range performance. Plan to transition 3GEN LRAS3 from BA5 funding to BA7 funding in future years.

This project also executes the Army Sensor Computing Environment (CE) effort which is part of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA-ALT) Common Operating Environment (COE) program. The Sensor CE effort focuses on increasing sensor interoperability across the enterprise and improving the Soldier-machine interface. This is done by defining, demonstrating and standardizing Sensor interfaces across the Army networks. Standardized interfaces delivered from this effort will be incorporated into current and future sensor systems and programs.

FY 2019 Base Funding in the amount of $53.737 million supports the 3GEN FLIR B-Kit EMD program activities as well as the initiation of the 3GEN LRAS3 Modification Work Order (MWO) effort to integrate 3GEN FLIR B-Kit, an IMU, and an M-code GPS receiver. Additionally, FY 2019 Base Funding supports the continued activities

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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associated with meeting sensor interoperability requirements and improving the Soldier-machine interface in support of the Army's vision of the Common Operating Environment (COE).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: 3GEN FLIR B-Kit EMD	35.230	43.919	42.683	-	42.683
Description: 3GEN FLIR EMD requirements and contract awards. *FY 2018 Plans:* FY 2018 Base Funding supports the continuation of 3GEN FLIR Prototype Fabrication, Test Readiness Review (TRR) preparation, initiation of software Formal Qualification Testing (FQT), and program management support. *FY 2019 Base Plans:* FY 2019 Base Funding supports 3GEN FLIR Prototype Fabrication, B-Kit CDR, TRR, and Design Verification Testing (DVT). *FY 2018 to FY 2019 Increase/Decrease Statement:* Minor economic adjustments.					
Title: Common Operating Environment (COE)	0.100	0.100	0.100	-	0.100
Description: This effort supports the Common Operating Environment vision by improving the sensor interoperability requirement and the Soldier-machine interface. Resultant improvements to be made on a program by program basis. *FY 2018 Plans:* FY 2018 Base Funding supports continued development of the COE program to include meeting the sensor interoperability requirement and improving the soldier-machine interface. Specific FY 2018 activities include continued demonstrations and experimentation for transition into Army programs. *FY 2019 Base Plans:* FY 2019 Base Funding supports continued development of the COE program to include meeting the sensor interoperability requirement and improving the soldier-machine interface. Specific FY 2019 activities include continued demonstrations and experimentation for transition into Army programs.					
Title: 3GEN LRAS3 ECP to integrate 3GEN FLIR B-Kit	2.016	8.881	10.954	-	10.954
Description: This effort supports the sensor enhancement activities required to integrate 3GEN FLIR B-Kit technology into the LRAS3.					

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: FY 2018 Base Funding supports completion of the performance specification and solicitation documentation; and initiation of the Modification Work Order (MWO) to integrate 3GEN FLIR B-Kit, an IMU, and an M-code GPS receiver. ***FY 2019 Base Plans:*** FY 2019 Base Funding supports contract solicitation and the specification development activities associated with integration of the 3GEN FLIR B-Kit, an Inertial Measurement Unit (IMU), and an M-code GPS receiver. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 funding increase over FY 2018 due to planned award of the Modification Work Order contract in FY 2019.					
Accomplishments/Planned Programs Subtotals	37.346	52.900	53.737	-	53.737

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 330: *Abrams Tank Improvement Program (PE 0203735A)*	117.707	108.570	164.840	-	164.840	105.901	66.332	58.338	53.425	Continuing	Continuing
• 371: *Bradley Improvement Program (PE 0203735A)*	107.330	130.863	166.985	-	166.985	152.705	87.933	80.389	48.851	Continuing	Continuing
• K38300: *Long Range Advanced Scout Surveillance System (LRAS3) (K38300) OPA2*	-	-	0.000	2.861	2.861	-	2.963	49.397	93.015	Continuing	Continuing

Remarks

D. Acquisition Strategy

3GEN FLIR: Materiel Development Decision (MDD) was received from the Army Acquisition Executive (AAE) and the Acquisition Decision Memorandum (ADM) was signed on 22-Dec-2014. Per the ADM, 3GEN FLIR entered the acquisition lifecycle at Milestone B (MS B) in 2Q FY 2016. After a successful MS B decision, competitive EMD contracts were awarded to design, develop, integrate and test the 3GEN FLIR B-Kit prior to production and mitigate the industrial base risk. The host platforms are responsible for integration of the 3GEN FLIR B-Kit.

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Army		**Date:** February 2018
Appropriation/Budget Activity 2040 **/** 5	**R-1 Program Element (Number/Name)** PE 0604710A **/** *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 **/** *Night Vision Dev Ed*

3GEN Long Range Advanced Scout Surveillance System (LRAS3): After a Milestone Decision Authority (MDA) review, 3GEN LRAS3 will perform technical trade studies to determine modifications required to the current LRAS3 to integrate 3GEN FLIR B-Kit technology, an Inertial Measurement Unit (IMU), and an M-coded Global Positioning System (GPS) receiver. Contract preparation activities for the Modification Work Order (MWO) award are planned for 2Q FY 2020.

Sensor CE: Additional Fiscal Year 2019 activities include continued development of the sensor interoperability requirement and improving the Soldier-machine interface in support of the Army's vision of the Common Operating Environment (COE).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army		Date: February 2018
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management	MIPR	PM TS : Ft. Belvoir, VA	13.114	0.978	Jan 2017	3.006	Jan 2018	2.369	Jan 2019	-		2.369	0.000	19.467	9.454
		Subtotal	13.114	0.978		3.006		2.369		-		2.369	0.000	19.467	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2012-FY 2013: Develop, Fab, and Qual of a common Ground Platform Engine with Block II EOCCM	C/Various	Various : Various	0.049	-		-		-		-		-	0.000	0.049	-
3GEN FLIR B-Kit Engineering/Document Prep	C/Various	Various : Various	21.685	-		-		-		-		-	0.000	21.685	-
3GEN FLIR B-Kit EMD	C/CPIF	Various : Various	17.191	33.123	Nov 2016	40.030	Dec 2017	39.008	Dec 2018	-		39.008	0.000	129.352	-
3GEN LRAS3: Tech Trade Studies	C/TBD	Various : Various	0.499	1.112	May 2017	-		-		-		-	0.000	1.611	-
3GEN LRAS3: ECP Integration	C/TBD	Various : Various	-	-		7.486	Mar 2018	9.055	Jan 2019	-		9.055	0.000	16.541	-
PSS P3I: CE COE	C/FP	Various : Various	19.162	-		-		-		-		-	0.000	19.162	-
		Subtotal	58.586	34.235		47.516		48.063		-		48.063	0.000	188.400	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
3GEN FLIR B-Kit Support	C/TBD	Various : Various	30.383	1.683	Feb 2017	1.154	Feb 2018	1.964	Feb 2019	-		1.964	0.000	35.184	-
3GEN LRAS3 - Spec development and solicitation prep	C/TBD	Various : Various	-	0.350	Feb 2017	1.124	Feb 2018	1.241	Feb 2019	-		1.241	0.000	2.715	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			Date: February 2018

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
COE Support	C/CPFF	Various : Various	1.194	0.100	Feb 2017	0.100	Feb 2018	0.100	Feb 2019	-		0.100	0.000	1.494	-
Subtotal			31.577	2.133		2.378		3.305		-		3.305	0.000	39.393	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Test Support	MIPR	Various : Various	15.850	-		-		-		-		-	0.000	15.850	15.850
Subtotal			15.850	-		-		-		-		-	0.000	15.850	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	119.127	37.346	52.900	53.737	-	53.737	0.000	263.110	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

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

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
3GEN FLIR - Spec Development, Trade Studies, Analyses, & Milestone Prep	1	2012	2	2016
3GEN FLIR B-Kit Development, Test, and Integration	2	2016	4	2022
3GEN FLIR B-Kit MS C	4	2022	4	2022
3GEN LRAS3 ECP to Integrate 3GEN FLIR B-Kit: Perform Tech Trade Studies	2	2017	4	2017
3GEN LRAS3 ECP to Integrate 3GEN FLIR B-Kit: Spec Development & Solicitation	1	2018	1	2020
3GEN LRAS3 ECP to Integrate 3GEN FLIR B-Kit: ECP Development, Test & Integration	2	2020	2	2024
Common Operating Environment, Development	2	2012	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army											**Date:** February 2018	
Appropriation/Budget Activity 2040 / 5				**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*						**Project (Number/Name)** L75 / *Profiler*		
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
L75: *Profiler*	-	3.736	0.000	0.000	-	0.000	0.000	0.000	0.000	2.107	0.000	5.843
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Profiler Virtual Module (PVM) provides meteorological (MET) data that includes wind speed, wind direction, temperature, barometric pressure, and humidity information required for use in the Advanced Field Artillery Tactical Data System (AFATDS). The correctional information is necessary for precise targeting and terminal guidance to Field Artillery assets. PVM improves accuracy of predictive fires solutions and allows for first round effects on target and reduces the risk of fratricide. This capability increases the lethality of indirect fire systems such as the rocket launchers, self-propelled or towed howitzers, and mortars.

FY 2019 Base funding is $0.

B. Accomplishments/Planned Programs ($ in Millions)

	FY 2017	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Title: Profiler Virtual Module COE V2/3 development	2.486	-	-	-	-
Description: Implementation of COE V2/3 requirements and Digital Terrain and Elevation Data (DTED) upgrades and improved elevation algorithms.					
Title: Support cost for conversion of the MET model for Profiler Virtual Module	0.650	-	-	-	-
Description: Conversion of the MET model for Profiler Virtual Module					
Title: Formal Qualification Testing/Developmental Testing (FQT/DT)	0.300	-	-	-	-
Description: Conduct and complete FQT/DT					
Title: Program Support Costs for Profiler software development	0.300	-	-	-	-
Description: Cost for Project Management Office efforts.					
Accomplishments/Planned Programs Subtotals	3.736	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• K27910: *Profiler*	-	0.070	0.000	-	0.000	-	-	-	-	0.000	0.070

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• K27900: *Profiler*	-	-	0.171	-	0.171	0.019	-	-	-	0.000	0.190

Remarks

D. Acquisition Strategy

The Profiler Acquisition Strategy was approved by the MDA on 28 March 2012 for a product improvement to the Profiler Block III for a Virtual Module supporting the Command Post Computing Environment of the Common Operating Environment (COE). PVM 1.0 was completed in FY15. PVM 1.0.1 reflects continued updates for weather model changes and to meet directed COE compliance.

The Profiler product was transitioned to PEO C3T per the transition plan signed by the Army Acquisition Executive (AAE) dated 14 May 2015. The APB dated 30 Sep 2010, reflecting efforts to develop Profiler Block 3, was closed out 3 Apr 2015. Profiler will transition to sustainment in FY17/18.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army													Date: February 2018		
Appropriation/Budget Activity 2040 / 5								**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*					**Project (Number/Name)** L75 / *Profiler*		

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support for Profiler (Core)	Sub Allot	PM Mission Command : APG, MD	3.293	0.300		-		-		-		-	0.000	3.593	-
Subtotal			3.293	0.300		-		-		-		-	0.000	3.593	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Profiler Virtual Module COE V2/V3 development and data gathering	IA	SEC/C3T/FD : Ft. Sill, OK	1.963	2.486		-		-		-		-	0.000	4.449	-
Subtotal			1.963	2.486		-		-		-		-	0.000	4.449	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Conversion of MET model for Profiler Virtual Module	MIPR	ARL, Various : WSMR, NM	2.673	0.650		-		-		-		-	0.000	3.323	-
Subtotal			2.673	0.650		-		-		-		-	0.000	3.323	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Formal Qualification Test/ Developmental Test and test ramp up activities	IA	ATEC, CTSF : Various	0.400	0.100		-		-		-		-	0.000	0.500	-
Limited User Test	MIPR	ATEC : Ft. Sill, OK	1.552	0.100		-		-		-		-	0.000	1.652	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			**Date:** February 2018

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Conduct PVM Weather Model Testing	IA	ARL, ATEC : APG, MD	0.339	0.100		-		-		-		-	0.000	0.439	-
Subtotal			2.291	0.300		-		-		-		-	0.000	2.591	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.220	3.736	0.000	-	-	-	0.000	13.956	N/A

Remarks

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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Profiler Virtual Module 1.0.1 Development																												
PVM 1.0.1 FQT																												
PVM 1.0.1 Customer Test																												
PVM 1.0.1 AIC Testing																												
PVM 1.0.1 Software Release																												
PVM 1.0.1 Fielding																												

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Army

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

Events	Start		End	
	Quarter	Year	Quarter	Year
Profiler Virtual Module 1.0.1 Development	1	2015	1	2017
PVM 1.0.1 FQT	1	2017	1	2017
PVM 1.0.1 Customer Test	2	2017	2	2017
PVM 1.0.1 AIC Testing	2	2017	2	2017
PVM 1.0.1 Software Release	3	2017	3	2017
PVM 1.0.1 Fielding	3	2017	1	2018

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Army										**Date:** February 2018	

Appropriation/Budget Activity 2040 *I* 5				**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*				**Project (Number/Name)** L76 *I Dismounted Fire Support Laser Targeting Systems*			

COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
L76: *Dismounted Fire Support Laser Targeting Systems*	-	5.562	14.957	15.341	-	15.341	5.880	5.292	5.496	5.921	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

 NA

A. Mission Description and Budget Item Justification

 This project matures technologies and capabilities which benefit the Lightweight Laser Designator Rangefinder (LLDR, AN/PED-1, AN/PED-1A, and AN/PED-1B) and the Joint Effects Targeting System (JETS). These precision targeting and next generation systems are used by dismounted Soldiers to locate, identify, and target enemy assets. This project focuses on reducing size, weight, power and cost, improving imaging performance, and increasing targeting accuracy. Targeting accuracy improvements will focus on developing and integrating affordable, non-magnetic, high accuracy, full-time (24/7), and all weather Precision Azimuth and Vertical Angle Measurement (PAVAM) devices, with reduced size, weight, and power characteristics into the LLDR system. Long term goals include improving current celestial navigation systems to increase operational availability, developing precision targeting capabilities that will operate in a Global Positioning System (GPS) denied environment to improve situational awareness, and to integrate Military Global Positioning System (GPS) User Equipment (M-Code) (next-generation GPS) receivers into LLDR and JETS, when available.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Title: Precision Azimuth and Vertical Angle Measurement (PAVAM) development ***Description:*** PAVAM is a non-magnetic based inertial navigation materiel solution for targeting devices in order to provide 24/7 precision target capability. This PAVAM effort improves azimuth accuracy leading to reduced collateral damage and improved target engagement. Celestial navigation systems provide a supplemental high accuracy, low cost azimuth measurement capability.	3.302	-	-	-	-
Title: Laser Development ***Description:*** Development of lightweight, low cost, multi-spectral, and more efficient lasers, and to develop laser stabilization technologies. ***FY 2019 Base Plans:***	0.250	-	0.300	-	0.300

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018	
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L76 / *Dismounted Fire Support Laser Targeting Systems*	

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue the efforts for the development of lightweight, low cost, multi-spectral, and more efficient lasers, and to develop laser stabilization technologies. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 supports Night Vision Lab work developing more efficient lasers and evaluations.					
Title: Target Acquisition Development ***Description:*** Focuses on development of improvements to optical detection, recognition, and identification of targets for precision targeting systems. ***FY 2019 Base Plans:*** Continue efforts to improve optical detection, recognition, and identification of targets for precision targeting systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 supports Night Vision Lab efforts for improvements in optical detection and recognition.	1.235	-	0.250	-	0.250
Title: Integration of M-Code GPS Receivers ***Description:*** Integrates M-Code GPS Receivers into the LLDR System. ***FY 2018 Plans:*** Initiate integration of M-Code GPS receivers into LLDR. ***FY 2019 Base Plans:*** Integrates M-code GPS Receivers into the LLDR system. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 decreased funding reflects ramped down integration efforts while focusing on qualifying LLDR 3 and waiting for additional hardware samples.	0.278	0.838	0.300	-	0.300
Title: Design, Integration, & Qualification of Improved LLDR Systems ***Description:*** One contract will be competitively awarded to procure updated LLDR systems with improved imaging performance and 24/7 precision targeting capability. This effort procures and qualifies improved LLDR systems for production beginning in FY20. ***FY 2018 Plans:***	0.497	14.119	14.491	-	14.491

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		**Date:** February 2018
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L76 / *Dismounted Fire Support Laser Targeting Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Initiate procurement of competing, improved LLDR systems. ***FY 2019 Base Plans:*** Continue integration of improved LLDR systems and initiate qualification testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 increase due to Qualification and Government Testing.					
Accomplishments/Planned Programs Subtotals	5.562	14.957	15.341	-	15.341

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• KA3100: *Lightweight Laser Designator Rangefinder (LLDR) Modification-of-In-Service*	28.058	9.172	20.783	4.050	24.833	36.328	74.380	86.180	65.567	Continuing	Continuing
• K32101: *Joint Effects Targeting System (JETS)*	48.375	48.664	66.574	-	66.574	89.772	93.511	90.660	97.345	Continuing	Continuing
• L79: *Joint Effects Targeting System (JETS)*	6.793	8.143	10.476	-	10.476	7.811	5.572	5.609	6.041	Continuing	Continuing
• VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	-	-	0.000	-	0.000	1.483	2.767	2.767	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

This project continues to exercise competitively awarded contracts using value adjusted total evaluated price (VATEP) source selection procedures.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army													Date: February 2018	

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / Night Vision Systems - Eng Dev	Project (Number/Name) L76 / Dismounted Fire Support Laser Targeting Systems

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	PM-SSL : Ft. Belvoir VA 22060	0.057	0.047	Nov 2016	0.075	Nov 2017	0.075	Nov 2018	-		0.075	Continuing	Continuing	Continuing
Subtotal			0.057	0.047		0.075		0.075		-		0.075	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PAVAM Development and Integration	SS/CPFF	Northrop Grumman : Apopka, FL	7.328	1.420	Jan 2017	-		-		-		-	Continuing	Continuing	-
Laser Development	SS/CPFF	TBD : Alexandria, VA 22310	1.180	0.250	Mar 2017	-		0.300	Mar 2019	-		0.300	Continuing	Continuing	-
Target Acquisition Development	SS/CPFF	CACI Technologies, INC : Chantilly, VA 20151	0.100	0.619	Feb 2017	-		0.250	Nov 2018	-		0.250	Continuing	Continuing	-
M-Code Integration	SS/CPFF	Johns Hopkins University : Laurel, MD	-	-		0.657	Jan 2018	0.300	Jan 2019	-		0.300	Continuing	Continuing	-
LLDR Qualification	C/CPFF	TBD : TBD	-	-		13.625	Apr 2018	13.000	Mar 2019	-		13.000	Continuing	Continuing	-
Subtotal			8.608	2.289		14.282		13.850		-		13.850	Continuing	Continuing	N/A

Remarks
Anticipate awarding to one contractor.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	Various : Various	-	0.180	Nov 2016	-		0.180	Nov 2018	-		0.180	Continuing	Continuing	-
Science and Engineering Support	SS/CPFF	Johns Hopkins University : Laurel, MD	0.787	3.046	Nov 2016	0.600	Jan 2018	0.435	Jan 2019	-		0.435	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army			Date: February 2018

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / Night Vision Systems - Eng Dev	Project (Number/Name) L76 / Dismounted Fire Support Laser Targeting Systems

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.787	3.226		0.600		0.615		-		0.615	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation Support	MIPR	Army Test and Evaluation Command, WSMR, NM : MIPR	-	-		-		0.801	Jun 2019	-		0.801	Continuing	Continuing	Continuing
Subtotal			-	-		-		0.801		-		0.801	Continuing	Continuing	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.452	5.562	14.957	15.341	-	15.341	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Army | **Date:** February 2018
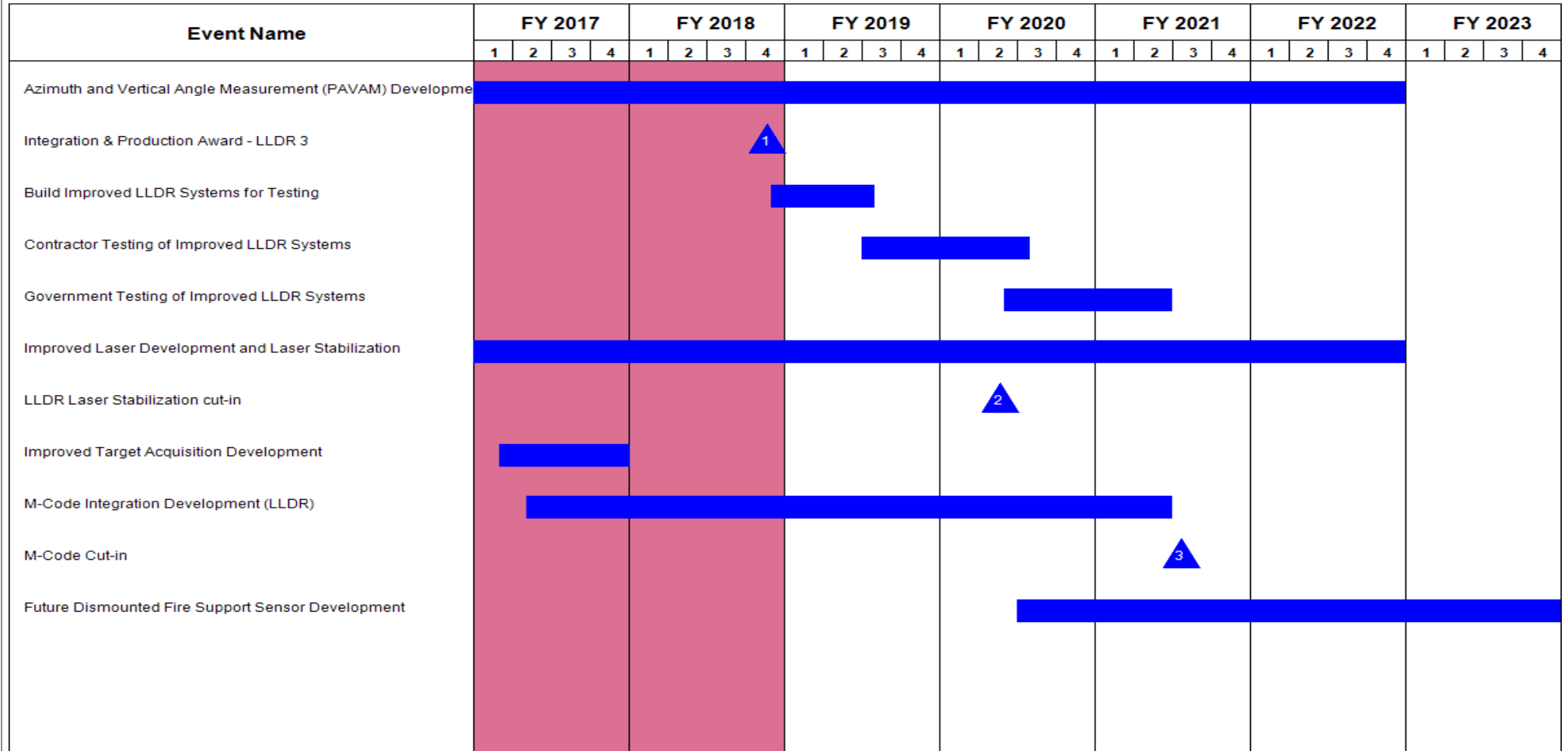
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / *Night Vision Systems - Eng Dev*	Project (Number/Name) L76 / *Dismounted Fire Support Laser Targeting Systems*

PE 0604710A: *Night Vision Systems - Eng Dev*
Army

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Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Army		**Date:** February 2018
Appropriation/Budget Activity 2040 *I* 5	**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*	**Project (Number/Name)** L76 *I Dismounted Fire Support Laser Targeting Systems*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
Azimuth and Vertical Angle Measurement (PAVAM) Development and Integration	2	2014	4	2022
Integration & Production Award - LLDR 3	4	2018	4	2018
Build Improved LLDR Systems for Testing	4	2018	3	2019
Contractor Testing of Improved LLDR Systems	3	2019	3	2020
Government Testing of Improved LLDR Systems	2	2020	2	2021
Improved Laser Development and Laser Stabilization	2	2014	4	2022
LLDR Laser Stabilization cut-in	2	2020	2	2020
Improved Target Acquisition Development	1	2015	4	2017
M-Code Integration Development (LLDR)	2	2017	2	2021
M-Code Cut-in	3	2021	3	2021
Future Dismounted Fire Support Sensor Development	3	2020	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018	

Appropriation/Budget Activity 2040 I 5	R-1 Program Element (Number/Name) PE 0604710A I *Night Vision Systems - Eng Dev*	Project (Number/Name) L79 I *Joint Effects Targeting Systems (JETS)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
L79: *Joint Effects Targeting Systems (JETS)*	-	6.793	8.143	10.476	-	10.476	7.811	5.572	5.609	6.041	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Effects Targeting System (JETS) is an Army program with joint information (Air Force and Marine Corps). JETS will meet the one-man, hand-held precision targeting gap identified by the Fires Center of Excellence (FCoE). JETS is a light-weight, handheld system that will provide the single dismounted observer and Joint Terminal Attack Controller (JTAC) with a common, enhanced day and night thermal capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets. JETS Target Location and Designation System (TLDS) will be able to interface with existing and future Forward Entry Systems (FESs) and operate in environments where global positioning system (GPS) capabilities are degraded or denied including the integration of military GPS user equipment (M-Code) GPS receivers, when they become available. This project will address continued development and integration of improved precision targeting components to reduce size, weight, power, and cost of systems for dismounted precisions Fires mission.

B. Accomplishments/Planned Programs ($ in Millions)

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Joint Effects Targeting System (JETS) Low-Rate Initial Production Qualification Testing	1.865	1.730	0.650	-	0.650

Description: This projects supports the Initial Operational Test & Evaluations (IOT&E) for the JETS production representative test systems.

FY 2018 Plans:
Conduct IOT&E.

FY 2019 Base Plans:
Conduct follow-on testing and evaluation.

FY 2018 to FY 2019 Increase/Decrease Statement:
FY 2019 funding decrease reflects reduced testing requirements.

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Precision Azimuth and Vertical Angle Measurement (PAVAM) Development	3.424	4.850	2.102	-	2.102

Description: Focuses on developments to improve size, weight, power and cost for inertial navigation PAVAM solutions which provide a 24/7 precision targeting capability. Develop improvements to celestial navigation PAVAM solutions to improve availability of precision measurements over a wider range of environments.

FY 2018 Plans:

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue improvements to current PAVAM technology. Continue development of reduced size, weight, power and cost of PAVAM. Continue development of improved celestial navigation PAVAM. *FY 2019 Base Plans:* Continue improvements to current PAVAM technology. Continue development of reduced size, weight, power, and cost for the PAVAM. Continue development of improved celestial navigation PAVAM. *FY 2018 to FY 2019 Increase/Decrease Statement:* FY 2019 funding reduction due to limiting and consolidating PAVAM improvements efforts.					
Title: Joint Effects Targeting System (JETS) Threat Mitigation Development and Integration *Description:* Focuses on developing and integrating technologies to counter battlefield threats to the system and the Soldier. This includes technologies and techniques to allow JETS to operate in GPS denied environments, incorporating counter sensor detection, and continuing to improve targeting sensors and lasers to operate in adverse conditions. *FY 2018 Plans:* Continue development of technologies to mitigate GPS denied environments. Continue counter sensor development. Initiate development of improved thermal imager for JETS. *FY 2019 Base Plans:* Continue development of technologies to reduce size, weight, and power (SWAP) and to mitigate the impact when operating in GPS denied environments. Continue counter sensor development. Continue development of improved thermal imager and initiate integration into JETS. *FY 2018 to FY 2019 Increase/Decrease Statement:* This increase is due to maturing research and development improved technologies of thermal imager and integration into JETS.	1.504	1.563	7.724	-	7.724
Accomplishments/Planned Programs Subtotals	6.793	8.143	10.476	-	10.476

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• K32101: *Joint Effects Targeting System (JETS)*	48.375	48.664	66.574	-	66.574	89.772	93.511	90.660	97.345	Continuing	Continuing

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Army		**Date:** February 2018
Appropriation/Budget Activity 2040 *I* 5	**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 *I Joint Effects Targeting Systems (JETS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• L76: *Dismounted Fire Support Laser Targeting Systems*	5.562	14.957	15.341	-	15.341	5.880	5.292	5.496	5.921	Continuing	Continuing

Remarks

D. Acquisition Strategy

This project continues to exercise competitively awarded contracts using best value source selection procedures.

E. Performance Metrics

N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Army		**Date:** February 2018
Appropriation/Budget Activity 2040 *I* 5	**R-1 Program Element (Number/Name)** PE 0604710A *I Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 *I Joint Effects Targeting Systems (JETS)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	PM-SSL : Ft Belvoir, VA 22060	3.400	0.347	Dec 2016	0.180	Dec 2017	0.180	Dec 2018	-		0.180	Continuing	Continuing	Continuing
Subtotal			3.400	0.347		0.180		0.180		-		0.180	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PAVAM 2 Development	C/CPFF	Various : Various	4.042	3.220	Nov 2016	3.543	Mar 2018	2.102	Mar 2019	-		2.102	Continuing	Continuing	Continuing
Threat Mitigation Development	C/CPFF	Various : Various	-	1.415	Mar 2017	1.000	Mar 2018	5.569	Mar 2019	-		5.569	Continuing	Continuing	Continuing
Subtotal			4.042	4.635		4.543		7.671		-		7.671	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	Night Vision Electronics Sensors Directorate : Ft. Belvoir, VA	11.985	0.375	Dec 2016	0.375	Dec 2017	0.375	Dec 2018	-		0.375	Continuing	Continuing	-
Science and Engineering Support	SS/CPFF	Johns Hopkins University : Laurel, MD	3.019	-		1.508	Apr 2018	1.600	Apr 2019	-		1.600	Continuing	Continuing	-
Subtotal			15.004	0.375		1.883		1.975		-		1.975	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing	MIPR	Various : Various	2.215	1.436	Feb 2017	1.537	Dec 2017	0.650	Dec 2018	-		0.650	Continuing	Continuing	-

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army | | | | | | | | | | | | | | Date: February 2018 | | |

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / Night Vision Systems - Eng Dev	Project (Number/Name) L79 / Joint Effects Targeting Systems (JETS)

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			2.215	1.436		1.537		0.650		-		0.650	Continuing	Continuing	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	24.661	6.793	8.143	10.476	-	10.476	Continuing	Continuing	N/A

Remarks

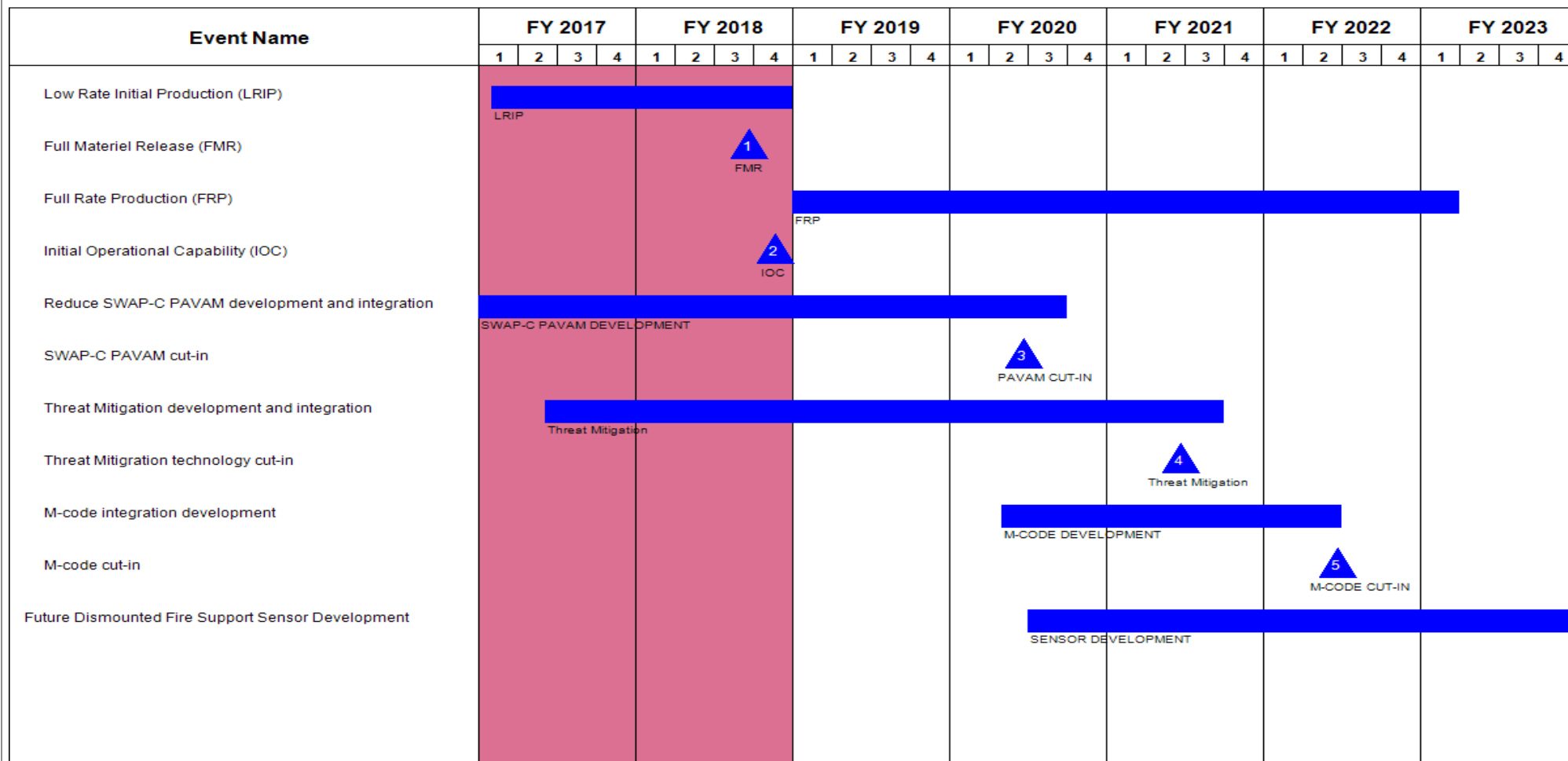| Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / Night Vision Systems - Eng Dev	**Project (Number/Name)** L79 / Joint Effects Targeting Systems (JETS)

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

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
JOINT EFFECTS TARGETING SYSTEMS (JETS) TARGET LOCATION DESINGATION SYSTEM (TLDS)	2	2011	2	2011
Engineering & Manufacturing Development (EMD)	2	2013	3	2016
Low Rate Initial Production (LRIP)	1	2017	4	2018
Full Materiel Release (FMR)	3	2018	3	2018
Full Rate Production (FRP)	1	2019	1	2023
Initial Operational Capability (IOC)	4	2018	4	2018
Reduce SWAP-C PAVAM development and integration	3	2016	3	2020
SWAP-C PAVAM cut-in	2	2020	2	2020
Threat Mitigation development and integration	2	2017	3	2021
Threat Mitigation technology cut-in	2	2021	2	2021
M-code integration development	2	2020	2	2022
M-code cut-in	2	2022	2	2022
Future Dismounted Fire Support Sensor Development	3	2020	4	2023