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 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603774A *I Night Vision System Advanced Development*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	-	9.930	12.347	7.350	-	7.350	8.012	9.341	9.951	7.153	Continuing	Continuing
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	9.930	12.347	7.350	-	7.350	6.529	6.574	7.184	7.153	Continuing	Continuing
VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV**	-	0.000	0.000	0.000	-	0.000	1.483	2.767	2.767	0.000	Continuing	Continuing

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2019

A. Mission Description and Budget Item Justification

This program element focuses on efforts to evaluate and integrate technologies and representative prototype systems that facilitate the development of Soldier-borne sensor devices transitioning from the laboratory to operational use. Efforts focus on proving out commonality across as broad a spectrum of users as possible to provide enhanced Soldier products, giving them superiority on the battlefield.

Project VT7 (Soldier Maneuver Sensors-Advanced Development): This budget item focuses on developing integrated and enhanced products to provide the Soldier with the ability to "fight, win and survive, day and night, in a multi-domain environment now and tomorrow". Products include maneuver capabilities to see, detect, and identify and target acquisition capabilities to identify and mitigate threat forces prior to being engaged. The integration of higher performing multispectral sensors with smart processing will provide automatically adjusted weapon sight reticles and leverage network connectivity to enable improved situational awareness/understanding. Additional capabilities include signature management and resiliency across the electromagnetic spectrum, integration of a modular design structure for laser target acquisition applications, next generation vision system, and mitigation of manned and unmanned threat sensor systems. This project supports efforts to evaluate and integrate technologies and representative prototype systems for development of Soldier-borne sensor devices, transitioning from the Science and Technology (S&T) stage to operational use. This project includes associated costs for efforts associated with integration and interface of products on the Soldiers' head, body, and weapon.

Project VT8 (Soldier Precision Targeting Devices - Advanced Development): These efforts focus on Technology Maturation Risk Reduction and on the technology demonstration of component technologies used in Soldier portable precision targeting devices to continue improvements to system performance while reducing size, weight, and power required by those systems. Efforts will improve the Soldier's ability to precisely locate and designate targets across a broader range of operating environments, including all weather conditions. The technologies developed will support the Joint Effects Targeting System (JETS) Target Locator/Designator System (TLDS) and the Lightweight Laser Designator Rangefinder (LLDR). Component technology development will precede integration into specific systems and will include improved Precision Azimuth and Vertical Angle Measurement (PAVAM) devices; solid-state, dual-color lasers for range finding/designation/marking; and electro-optical sensors such as infrared, near-infrared, ultra-violet, and visible spectrum imagers, laser designator spot detection and imaging, and integration of advanced power management technologies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army					Date: February 2018
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*		R-1 Program Element (Number/Name) PE 0603774A / *Night Vision System Advanced Development*			
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	10.321	12.347	8.435	-	8.435
Current President's Budget	9.930	12.347	7.350	-	7.350
Total Adjustments	-0.391	0.000	-1.085	-	-1.085
• Congressional General Reductions	-0.005	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.386	-			
• Adjustments to Budget Years	-	-	-1.085	-	-1.085

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / *Night Vision System Advanced Development*	Project (Number/Name) VT7 / *Soldier Maneuver Sensors - Adv 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
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	9.930	12.347	7.350	-	7.350	6.529	6.574	7.184	7.153	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This budget item focuses on developing integrated and enhanced products to provide the Soldier with the ability to "fight, win and survive, day and night, in a multi-domain environment now and tomorrow". Products include maneuver capabilities to see, detect, and identify and target acquisition capabilities to identify and mitigate threat forces prior to being engaged. The integration of higher performing multispectral sensors with smart processing will provide automatically adjusted weapon sight reticles and leverage network connectivity to enable improved situational awareness/understanding. Additional capabilities include signature management and resiliency across the electromagnetic spectrum, integration of a modular design structure for laser target acquisition applications, next generation vision system, and mitigation of manned and unmanned threat sensor systems. This project supports efforts to evaluate and integrate technologies and representative prototype systems for development of Soldier-borne sensor devices, transitioning from the Science and Technology (S&T) stage to operational use. This project includes associated costs for efforts associated with integration and interface of products on the Soldiers' head, body, and weapon.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Family of Vision and Mobility Capabilities (FVMC)	7.845	10.374	5.815	-	5.815
Description: FVMC is the next generation vision system that provides enhanced capabilities for day and night that will reduce Soldier's load and allow hands free operation. The FVMC will provide spatially-aligned imagery from the weapon sight to the heads-up display. FVMC supports Nett Warrior by fusing sensor video and data sources using smart processing to provide improved situational awareness/understanding in the Soldier vision system. The FVMC will provide day/night Rapid Target Acquisition capability by wirelessly interfacing with the Family of Weapon Sights-Individual variant. The FVMC will serve as the Soldier's digital platform for displaying augmented reality data. FVMC will integrate with future digital combat optics. FVMC provides capabilities that support overmatch against threats documented in the New Generation Warfare study, OSD Close Combat Strategic Portfolio Review and the Small Arms Ammunition Configuration study. These capabilities are captured in the Maneuver Force Modernization Strategy and Squad and Soldier Modernization Deep Dive strategic plans.					
FY 2018 Plans: Continue development of components algorithms and demonstrators in support of providing FVMC.					
FY 2019 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision System Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue development of components algorithms and demonstrators in support of providing FVMC. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This decrease is due to completion of 6.4 Budget Activity tasks and expected 6.5 Budget Activity funding to mature technologies for subsequent production.					
Title: Pre-Shot Threat Detection (PTD) ***Description:*** The PTD is a capability designed to detect threat Snipers, Forward Observers and Scouts equipped with direct view and indirect view optics. The PTD functions include laser illumination, optical augmentation and pointing. PTD functions will be integrated into other Soldier systems. 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 provides the Soldier with a capability to conduct pre-shot threat detection by detecting and identifying the location. PTD combines the capability of the currently fielded laser systems, thereby reducing redundancy and the Soldiers' load. PTD (Covert) provides the maneuver element with an enhanced solution (Covert) that provides the Soldier with a capability to conduct pre-shot threat detection by detecting and identifying the location of threat optics while remaining undetected. ***FY 2018 Plans:*** Continue development of covert components functionality. ***FY 2019 Base Plans:*** Continue development of covert components functionality. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This decrease is due to completion of 6.4 Budget Activity tasks and expected 6.5 Budget Activity funding to mature technologies for subsequent production.	2.085	1.973	0.515	-	0.515
Title: Family of Target Acquisition Laser (FTAL) ***Description:*** FTAL develops modular laser components and systems to support target acquisition for pointing, ranging, target hand-off, detection and mitigation of threat sensors. FTAL will develop a common laser range finding core for fire control and other laser capabilities based on Squad member Table of Organization and Equipment (TOE) position. FTAL will also mitigate threat from Unmanned Aerial Systems (UAS) and will pursue a common remote to operate all weapon enablers. ***FY 2019 Base Plans:***	-	-	1.020	-	1.020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision System Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Initiate development and integration of modular target acquisition laser components. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This increase is due to maturing research and development laser technology that can now enter a 6.4 Budget Activity level effort to further mature the prototypes in preparation for subsequent pre production activities.					
Accomplishments/Planned Programs Subtotals	9.930	12.347	7.350	-	7.350

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
• L67: *Night Vision Systems -Eng Dev (PE 604710 L67)*	23.054	32.504	60.060	-	60.060	29.079	20.416	18.259	18.164	Continuing	Continuing
• K36400: *Helmet Mounted Enhanced Vision Devices (HMEVD) (SSN K36400)*	118.187	144.644	109.724	0.027	109.751	105.661	58.047	61.783	116.345	Continuing	Continuing
• K22002: *Family of Weapon Sights - Individual (FWS-I) (SSN K22002)*	49.536	49.887	94.932	-	94.932	81.544	79.213	19.124	22.473	Continuing	Continuing
• K22003: *Family of Weapon Sights - Crew Served (FWS-CS) (SSN K22003)*	-	1.033	30.581	0.525	31.106	77.345	84.818	93.886	75.758	Continuing	Continuing
• K22004: *Family of Weapon Sights - Sniper (FWS-S) (SSN K22004)*	-	8.185	15.224	-	15.224	25.800	16.001	1.350	1.364	Continuing	Continuing
• B53800: *Laser Targeting Locator Modules (LTLM) (SSN B53800)*	33.983	22.226	34.960	0.436	35.396	20.138	26.231	21.136	24.072	Continuing	Continuing
• K35110: *Small Tactical Optical Rifle Mounted MLRF (STORM) (SSN K35110)*	18.843	14.007	22.882	0.060	22.942	22.906	23.218	26.825	26.389	Continuing	Continuing

Remarks

D. Acquisition Strategy

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

Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
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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 Management	MIPR	Various : Various	4.065	1.018	Feb 2017	0.565		0.075	Feb 2019	-		0.075	Continuing	Continuing	-
		Subtotal	4.065	1.018		0.565		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
Family of Vision and Mobility Capabilities (FVMC)	MIPR	NVESD : FT BELVOIR, VA	-	6.511	Aug 2017	9.309		5.815	Dec 2018	-		5.815	Continuing	Continuing	-
Pre-Shot Threat Detection (PTD)	MIPR	NVESD : FT BELVOIR, VA	5.458	2.085	Jan 2017	1.973		0.415	Dec 2018	-		0.415	Continuing	Continuing	-
Family of Target Acquisition Laser (FTAL)	MIPR	NVESD : FT BELVOIR, VA	-	-		-		0.620	Dec 2018	-		0.620	Continuing	Continuing	-
		Subtotal	5.458	8.596		11.282		6.850		-		6.850	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	NVESD : FT BELVOIR, VA	1.571	0.316	Aug 2017	0.500		0.175	Dec 2018	-		0.175	Continuing	Continuing	-
		Subtotal	1.571	0.316		0.500		0.175		-		0.175	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
Government Support Test Activity	MIPR	Army Test and Evaluation Command : Varrious	0.600	-		-		0.250	Apr 2019	-		0.250	Continuing	Continuing	-

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
		Subtotal	0.600	-		-		0.250		-		0.250	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	11.694	9.930		12.347		7.350		-		7.350	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision System Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

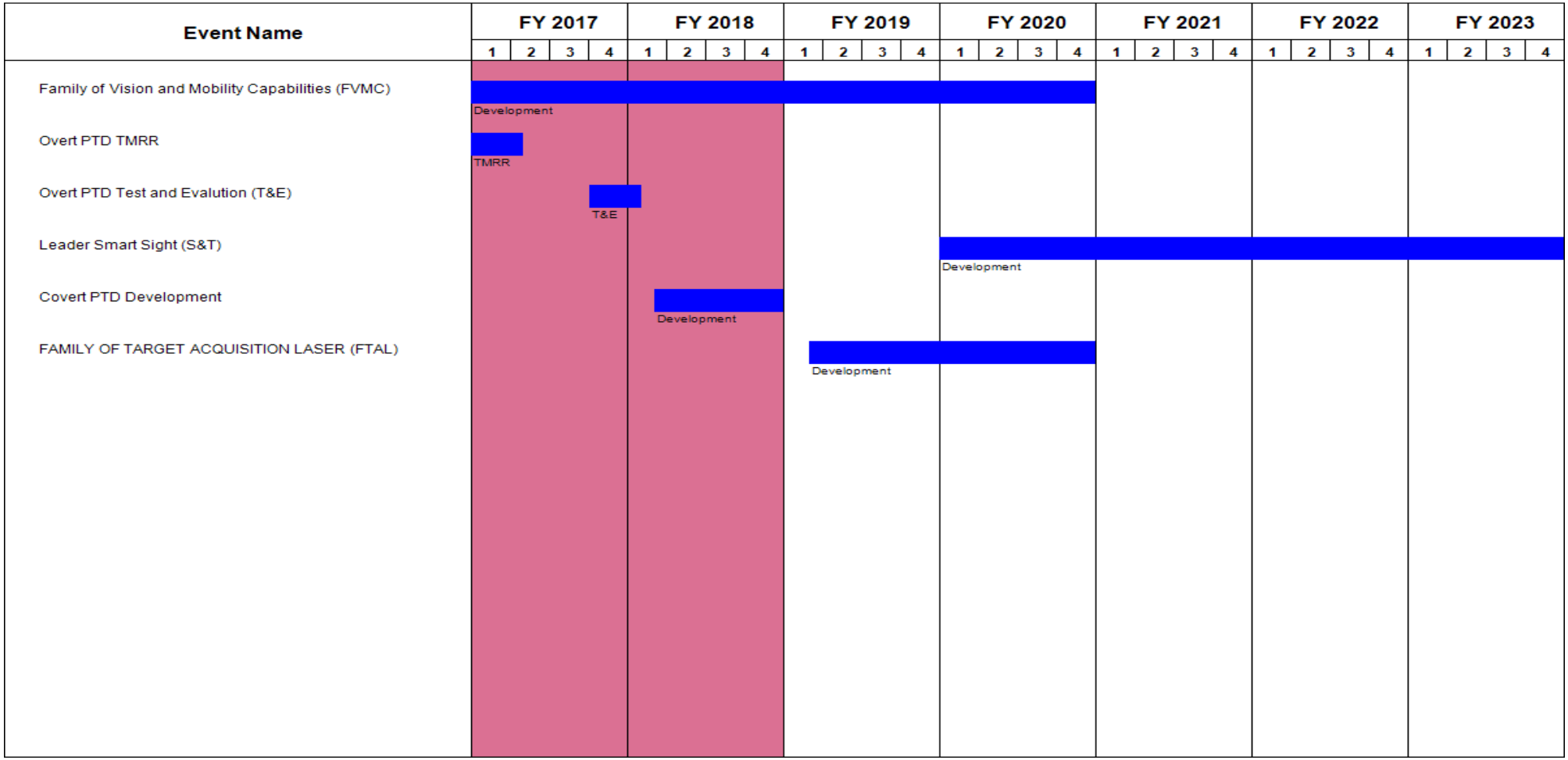

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision System Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FAMILY OF WEAPON SIGHTS (FWS)	4	2011	4	2011
FWS-I Technology Maturation Risk Reduction (TMRR)	4	2011	3	2014
FWS-CS/S Technology Maturation Risk Reduction (TMRR)	4	2011	3	2016
Family of Vision and Mobility Capabilities (FVMC)	3	2013	4	2020
PRE-SHOT THREAT DETECTION (PTD)	4	2013	4	2013
Overt PTD TMRR	3	2016	1	2017
Overt PTD Test and Evalution (T&E)	4	2017	1	2018
Leader Smart Sight (S&T)	1	2020	4	2023
Covert PTD Development	1	2018	4	2018
FAMILY OF TARGET ACQUISITION LASER (FTAL)	1	2019	4	2020