Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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 Systems Advanced Development*

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	7.003	10.321	12.347	-	12.347	8.435	6.779	6.828	7.451	Continuing	Continuing
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	7.003	10.321	12.347	-	12.347	8.435	6.779	6.828	7.451	Continuing	Continuing

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): These efforts focus on providing enhanced products to give Soldiers superiority on the battlefield by providing the capability to detect enemy snipers using precise target information to mitigate operational risk before sniper fire occurs. This project integrates higher resolution thermal focal plane arrays, integrated ballistic solutions to auto-adjust reticles for range, wireless technology with weapon sights, improved range, performance, and capability, while decreasing system size and weight. These integration efforts enhance Soldier situational awareness, lethality, survivability, mobility, and comfort in combat and training environments. Additionally, this project supports efforts to evaluate and integrate technologies and representative prototype systems for the development of Soldier-borne sensor devices, transitioning from the Science and Technology (S&T) arena to operational use. This project includes cost associated with efforts for integration and interface of products on Soldiers head, body and weapons.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	7.292	10.321	13.856	-	13.856
Current President's Budget	7.003	10.321	12.347	-	12.347
Total Adjustments	-0.289	0.000	-1.509	-	-1.509
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.289	-			
• Adjustments to Budget Years	0.000	0.000	-1.509	-	-1.509

Change Summary Explanation

FY 2018 Funding was reduced by (1.509) million to reflect current program execution.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / *Night Vision Systems Advanced Development*	Project (Number/Name) VT7 / *Soldier Maneuver Sensors - Adv Dev*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	7.003	10.321	12.347	-	12.347	8.435	6.779	6.828	7.451	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These efforts focus on providing enhanced products to give Soldiers superiority on the battlefield by providing the capability to detect enemy snipers using precise target information to mitigate operational risk before sniper fire occurs. This project integrates higher resolution thermal focal plane arrays, integrated ballistic solutions to auto-adjust reticles for range, wireless technology with weapon sights, improved range, performance, and capability, while decreasing system size and weight. These integration efforts enhance Soldier situational awareness, lethality, survivability, mobility, and comfort in combat and training environments. Additionally, this project supports efforts to evaluate and integrate technologies and representative prototype systems for the development of Soldier-borne sensor devices, transitioning from the Science and Technology (S&T) arena to operational use. 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Family of Weapon Sights (FWS)	4.060	-	-	-	-
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 Enhanced Target Engagement 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 a smaller pixel focal plane array in multiple large format sizes to improve sensitivity, clarity, and range, while simultaneously reducing the size, weight and power consumption of both the Crew-Served and Sniper 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 aim point in the Soldier's goggle. 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 rangefinder device, a more accurate aim point 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 providing exceptional observation.					

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Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
FY 2016 Accomplishments: Completed Technology Maturation Risk Reduction (TMRR) phase for the FWS-CS and FWS-S. Prepared and released Request for Proposals (RFPs) and conduct source selection boards for FWS-CS and FWS-S Engineering and Manufacturing Development (EMD) contract awards. Improved the manufacturing process for uncooled Focal Plane Arrays (FPAs) and micro Optical Light Emitting Diode (OLED) displays that are key components of the FWS.					
Title: Family of Vision and Mobility Capabilities (FVMC) ***Description:*** The FVMC 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 2017 Plans:*** Continue development efforts of the FVMC focusing at the component level. ***FY 2018 Base Plans:*** Continue development of components algorithms and demonstrators in support of providing FVMC.	-	8.151	10.374	-	10.374
Title: Pre-Shot Threat Detection (PTD) ***Description:*** The PTD system 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 threat detection, obtain situational awareness,	2.943	2.170	1.973	-	1.973

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
verification of the threat and initiate appropriate threat reduction actions all while remaining undetected by enemy optics. ***FY 2016 Accomplishments:*** Continued TMRR and began PTD component development and laser development. Completed funding for PTD technology demonstrators. ***FY 2017 Plans:*** Develop covert capability. Research and test suitable imagers for covert functionality. ***FY 2018 Base Plans:*** Continue development of covert components functionality.					
Accomplishments/Planned Programs Subtotals	7.003	10.321	12.347	-	12.347

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• Night Vision Systems -Eng Dev: *Night Vision Systems - Eng Dev (PE 604710 L67)*	19.710	26.257	32.504	-	32.504	23.355	19.649	19.343	19.200	Continuing	Continuing
• Helmet Mounted Enhanced Vision Devi: *Helmet Mounted Enhanced Vision Devices (HMEVD) (SSN K36400)*	92.533	156.197	144.617	0.027	144.644	120.989	91.640	43.111	33.076	Continuing	Continuing
• Family of Weapon Sights (FWS) - I: *Family of Weapon Sights - Individual (FWS-I) (SSN K22002)*	30.194	55.536	49.887	-	49.887	89.769	83.246	80.685	19.900	Continuing	Continuing
• Family of Weapon Sights (FWS) - CS: *Family of Weapon Sights - Crew Served (FWS-CS) (SSN K22003)*	-	-	1.033	-	1.033	31.469	78.822	86.403	95.575	Continuing	Continuing
• Family of Weapon Sights (FWS) - S: *Family of Weapon Sights - Sniper (FWS-S) (SSN K22004)*	-	-	8.185	-	8.185	15.753	26.467	16.555	1.728	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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C. Other Program Funding Summary ($ in Millions)

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

Remarks

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: FY 2018 Army		Date: May 2017
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	Various : Various	3.214	0.851	Feb 2016	1.018	Feb 2017	0.565	Feb 2018	-		0.565	Continuing	Continuing	0.000
		Subtotal	3.214	0.851		1.018		0.565		-		0.565	-	-	0.000

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Weapon Sights-Crew Served (FWS-CS)	Various	NVESD : FT BELVOIR, VA	8.259	2.500	Feb 2016	-		-		-		-	0.000	10.759	0.000
Family of Weapon Sights-Sniper (FWS-S)	MIPR	NVESD : FT BELVOIR, VA	5.840	0.547	Dec 2016	-		-		-		-	0.000	6.387	0.000
Family of Vision and Mobility Capabilities (FVMC)	MIPR	NVESD : FT BELVOIR, VA	0.000	-		7.033	Dec 2016	9.309	Feb 2018	-		9.309	Continuing	Continuing	0.000
Pre-Shot Threat Detection (PTD)	MIPR	NVESD : FT BELVOIR, VA	2.848	2.610	Jun 2016	1.170	Jan 2017	1.973	Dec 2017	-		1.973	Continuing	Continuing	0.000
		Subtotal	16.947	5.657		8.203		11.282		-		11.282	-	-	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : FT BELVOIR, VA	1.076	0.495	Feb 2016	1.100	Dec 2016	0.500	Feb 2018	-		0.500	Continuing	Continuing	0.000
		Subtotal	1.076	0.495		1.100		0.500		-		0.500	-	-	0.000

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support Test Activity	MIPR	Army Test and Evaluation Command : Varrious	0.600	-		-		-		-		-	Continuing	Continuing	0.000
		Subtotal	0.600	-		-		-		-		-	-	-	0.000

	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.837	7.003		10.321		12.347		-		12.347	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
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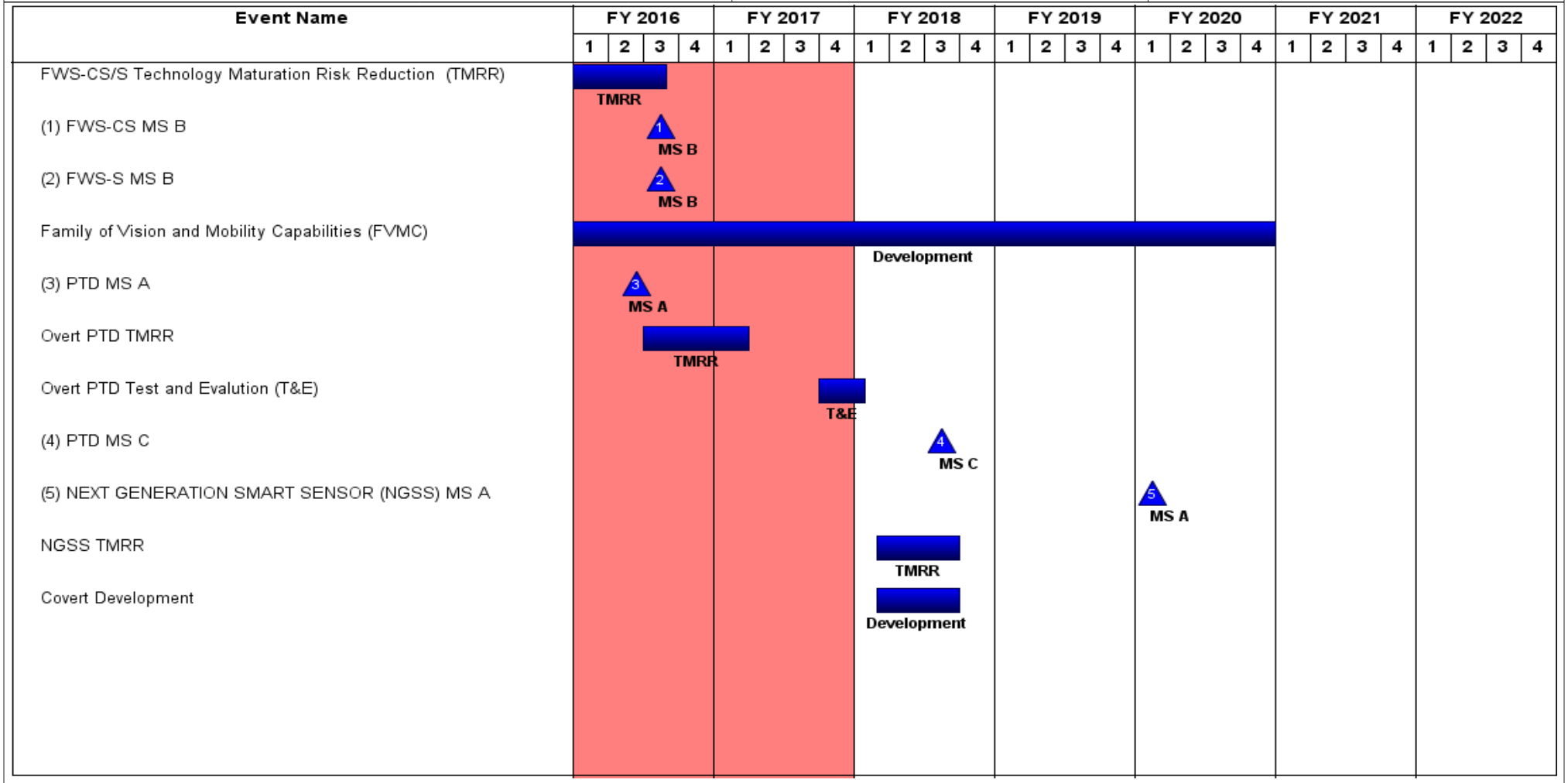

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FWS-CS/S Technology Maturation Risk Reduction (TMRR)	4	2011	3	2016
FWS-CS MS B	3	2016	3	2016
FWS-S MS B	3	2016	3	2016
Family of Vision and Mobility Capabilities (FVMC)	3	2013	4	2020
PTD MS A	2	2016	2	2016
Overt PTD TMRR	3	2016	1	2017
Overt PTD Test and Evalution (T&E)	4	2017	1	2018
PTD MS C	3	2018	3	2018
NEXT GENERATION SMART SENSOR (NGSS) MS A	1	2020	1	2020
NGSS TMRR	1	2018	3	2018
Covert Development	1	2018	3	2018