Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											Date: March 2019	
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 Systems Advanced Development*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	-	501.816	7.341	251.011	-	251.011	10.340	10.450	9.602	9.378	Continuing	Continuing
BQ5: *Visual Augmentation System Advanced Development*	-	0.000	0.000	242.000	-	242.000	0.000	0.000	0.000	0.000	0.000	242.000
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	501.816	7.341	7.528	-	7.528	7.573	7.683	7.602	7.378	Continuing	Continuing
VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	-	0.000	0.000	1.483	-	1.483	2.767	2.767	2.000	2.000	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 BQ5 (Visual Augmentation System-Advanced Development) focuses on developing the next generation vision system that provides the Soldier with the ability to "fight, win and survive, day and night, in a multi-domain environment now and tomorrow". Funded efforts will accelerate the development of components, algorithms and demonstrations in support of the next generation day/night vision system. Provide Rapid Target Acquisition capability with the Family of Weapon Sights-Individual and next generation End User Device (EUD), to include advanced EUD applications. The focus is to integrate external data sources and advanced processed imagery with overlay data display. This project supports efforts to evaluate and integrate technologies and representative prototype systems for development of Soldier 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. This is a priority of the Secretary's Close Combat Lethality Task Force. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

Project VT7 (Soldier Maneuver Sensors-Advanced Development) 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 detect, recognize and identify targets, and to provide target acquisition capabilities to mitigate threats 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 including support for wireless data transfer, 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 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. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
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 Systems Advanced Development*

Project VT8 (Soldier Precision Targeting Devices - Advanced Development) focuses on developing component technologies and representative prototype systems for 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 and GPS-contested environments. Component technology development will precede integration into specific systems and will include improved Precision Azimuth and Vertical Angle Measurement (PAVAM) devices; solid-state, improved lasers for range finding/designation/marking; electro-optical sensors such as infrared, near-infrared, ultra-violet, and visible spectrum imagers; sensor and data fusion; laser designator spot detection and imaging; integration of advanced power management technologies. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	12.347	7.350	8.012	-	8.012
Current President's Budget	501.816	7.341	251.011	-	251.011
Total Adjustments	489.469	-0.009	242.999	-	242.999
• Congressional General Reductions	-0.009	-0.009			
• Congressional Directed Reductions	-1.400	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	491.300	-			
• SBIR/STTR Transfer	-0.422	-			
• Adjustments to Budget Years	-	-	242.999	-	242.999

Change Summary Explanation

FY 2018 increase begins the development of the Integrated Visual Augmentation System (IVAS) Heads Up Display (HUD) 3.0.
FY 2020 increase is for improved Forward Looking Infrared (IFLIR) and IVAS HUD in support of the Army's modernization priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / *Night Vision Systems Advanced Development*	Project (Number/Name) BQ5 / *Visual Augmentation System Advanced Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
BQ5: *Visual Augmentation System Advanced Development*	-	0.000	0.000	242.000	-	242.000	0.000	0.000	0.000	0.000	0.000	242.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project focuses on developing the next generation vision system that provides the Soldier with the ability to "fight, win and survive, day and night, in a multi-domain environment now and tomorrow". Funded efforts will accelerate the development of components, algorithms and demonstrations in support of the next generation day/night vision system. Provide Rapid Target Acquisition capability with the Family of Weapon Sights-Individual and next generation End User Device (EUD), to include advanced EUD applications. The focus is to integrate external data sources and advanced processed imagery with overlay data display. This project supports efforts to evaluate and integrate technologies and representative prototype systems for development of Soldier 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. This is a priority of the Secretary's Close Combat Lethality Task Force. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Heads Up Display (HUD)	-	-	242.000
Description: Integrated Visual Augmentation System (IVAS) HUD 3.0 provides a first generation single platform for Soldier/ Marines to train, rehearse, and fight in day and night that provides increased lethality, mobility, and situational awareness necessary to achieve overmatch against our current and future adversaries. ***FY 2020 Plans:*** Complete the development and technology improvements to IVAS. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY2020 is the first year for IVAS in this project.			
Accomplishments/Planned Programs Subtotals	-	-	242.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• VT7: *Soldier Maneuver Sensors - Adv Dev*	501.816	7.341	7.528	-	7.528	7.573	7.683	7.602	7.378	0.000	546.921

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** BQ5 / *Visual Augmentation System Advanced Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• BQ6: *Visual Augmentation System Eng Dev*	-	-	89.000	-	89.000	-	-	-	-	0.000	89.000
• L67: *Soldier Night Vision Devices*	108.518	58.987	40.060	-	40.060	28.667	19.240	20.646	25.310	0.000	301.428
• K36400: *Helmet Mounted Enhanced Vision Devices*	144.644	112.251	129.485	-	129.485	207.845	245.266	6.442	382.007	Continuing	Continuing
• K36402: *IVAS/Heads Up Display*	-	-	76.225	-	76.225	907.000	1,046.775	320.000	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

This project utilizes competitively awarded contracts using best value source selection procedures.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / *Night Vision Systems Advanced Development*	Project (Number/Name) BQ5 / *Visual Augmentation System Advanced Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Heads Up Display (HUD)	Various	Various : Various	-	-		-		232.534	Nov 2019	-		232.534	0.000	232.534	-
		Subtotal	-	-		-		232.534		-		232.534	0.000	232.534	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : Fort Belvoir, Virginia 22060	-	-		-		9.466	Nov 2019	-		9.466	0.000	9.466	-
		Subtotal	-	-		-		9.466		-		9.466	0.000	9.466	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		0.000		242.000		-		242.000	0.000	242.000	N/A

Remarks

In FY 2020 Management Services and Test and Evaluation Cost Category Items will be funded from PE 0604710A Night Vision Systems - Engineering Development project BQ6 Visual Augmentation System - Engineering Development.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** BQ5 / *Visual Augmentation System Advanced Development*

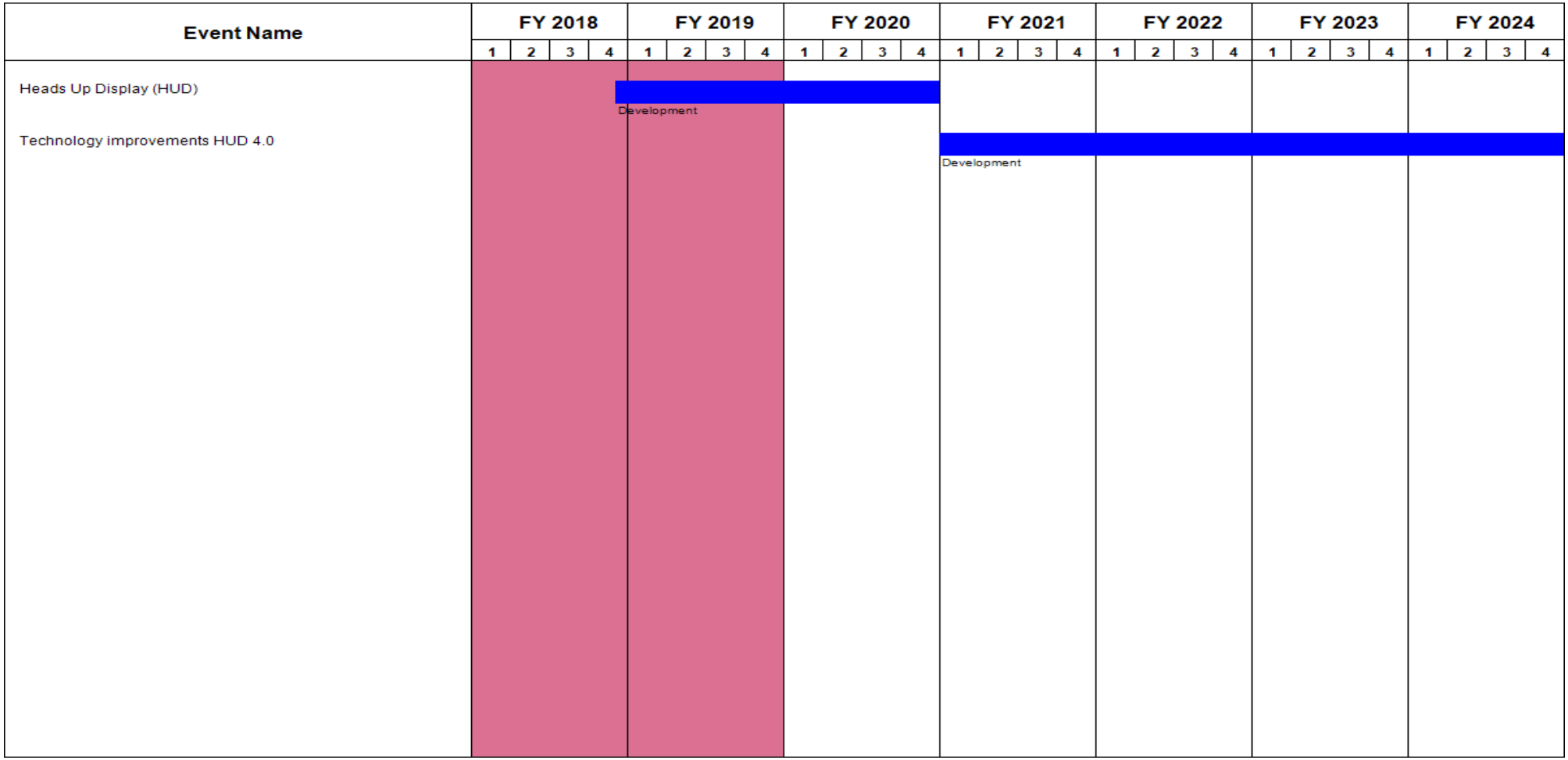

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** BQ5 / *Visual Augmentation System Advanced Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Heads Up Display (HUD)	4	2018	4	2020
Technology improvements HUD 4.0	1	2021	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	501.816	7.341	7.528	-	7.528	7.573	7.683	7.602	7.378	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project 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 detect, recognize and identify targets, and to provide target acquisition capabilities to mitigate threats 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 including support for wireless data transfer, 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 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 into the Soldiers' Adaptive Architecture. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Family of Vision and Mobility Capabilities (FVMC)	8.965	5.815	3.637
Description: FVMC provides the next generation vision 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 all variants of the Family of Weapon Sights. 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 2019 Plans: In FY19, additional integration work will be performed for making an integral laser range finder work within the Lethality Smart System (LSS). In addition, the plan is to complete, establish and document, via Interface Control Documents (ICDs), the integration of the LSS with the Enhanced Night Vision Goggles, Integrated Visual Augmentation System and Next Generation			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
Weapons. Some funding will go towards integration of more robust and less power micro Organic Light Emitting Diode Displays (OLEDs) that are used on essentially all Soldier Sensors and Lasers programs. ***FY 2020 Plans:*** For FY20, in addition to continuing unfinished work initiated in FY19, integration and enhancements are expected in the ENVG-B product line. ENVG-B furthers wireless Augmented Reality (AR) and Machine Learning (ML) into the goggle and incorporation of enhancements is anticipated. Work is continuing on a more robust, harder to detect and intercept wireless solution. Integration of this 256-bit encryption solution will be performed on all SSL programs of record in an effort to establish a Intra Soldier Wireless (ISW) network. In FY20, the ISW network will be documented (via ICDs) and available for use on any program that desires wireless connectivity with the ISW network. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY 2020, funding decrease in FMVC is due to the development and maturation of components and algorithms required to support LSS programs.			
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. 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 2020 Plans:*** Continue development of covert components functionality. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** There is no funding planned for PTD in FY 2019.	-	-	0.280
Title: Family of Target Acquisition Laser (FTAL) ***Description:*** FTAL develops modular laser components and representative prototype 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 pursue a common remote to operate all weapon enablers. FTAL modules will be developed with full documentation, including specifications and interface control documents such that they support the Adaptive Soldier Architecture. ***FY 2019 Plans:***	1.551	1.257	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
Initiate development and integration of modular target acquisition laser components. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** A portion of FTAL funding transitioned to the Heads Up Display (HUD) in FY 2020.			
Title: Heads Up Display (HUD) ***Description:*** The Heads Up Display (HUD) is an output of the FVMC investment as a result of emerging commercial technology. The HUD will deliver overmatch warfighting capability plus enable Synthetic Training Environment squad capabilities. The HUD will also provide a single integrated digital, low profile, conformal day/night device that allows Soldiers and Squads to Train, Rehearse and Fight in any operational environment. Finally, prototyping will provide multiple knowledge point events to gauge vendor progress and capability to the force.	491.300	-	-
Title: Lethality Smart System (LSS) ***Description:*** The LSS is the next generation weapon targeting sensor for use on the Next Generation Squad Weapons (NGSW) which provides additional situational awareness and lethality by wirelessly interfacing to other Soldier devices. The increased LSS Soldier capabilities include providing heads up Rapid Target Acquisition (RTA) though the wireless interface with the head mounted Soldier vision systems and interface to the Next Generation Rifle through the Intelligent/Powered Rail. LSS will also interface wirelessly with the Nett Warrior End User Device (NW EUD) to exchange Mission Command information and provide through sight augmented reality for enhanced situational awareness. Additionally, LSS will provide day and night capabilities to image in multiple spectral bands, interrogate potential targets, provide facial recognition capabilities at tactical ranges, perform target handoff, provide distance to target through laser rangefinder interface, and calculate and adjust for displaced reticule using advanced fire control algorithms. ***FY 2020 Plans:*** Within the Pre-Shot Detection and Family of Target Acquisition Laser lines, FY 2019 should complete the development of laser components including the "ATOM" Short Wave Infra-Red (SWIR) laser that is planned for incorporation into the LSS. The ATOM lasers primarily used for aiming, target handoff, target illumination and ranging. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY 2020, funding increased due to the development and maturation of components and algorithms required to support LSS.	-	-	3.611
Title: FY 2019 SBIR / STTR Transfer ***Description:*** FY 2019 SBIR / STTR adjustment. ***FY 2019 Plans:***	-	0.269	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
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 2018	FY 2019	FY 2020
FY 2019 SBIR / STTR adjustment. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2019 SBIR / STTR adjustment.			
Accomplishments/Planned Programs Subtotals	501.816	7.341	7.528

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• L67: *Soldier Night Vision Devices*	108.518	58.987	40.060	-	40.060	28.667	19.240	20.646	25.310	Continuing	Continuing
• K36400: *Helmet Mounted Enhanced Vision Devices*	144.644	112.251	129.485	-	129.485	207.845	245.266	6.442	382.007	Continuing	Continuing
• K22002: *FWS-INDIVIDUAL*	59.105	94.932	81.541	-	81.541	70.211	61.922	71.600	77.797	Continuing	Continuing
• K22003: *FWS-CREW SERVED*	-	31.106	39.342	-	39.342	85.949	85.002	85.647	77.306	Continuing	Continuing
• K22004: *FWS-SNIPER*	-	-	0.000	-	0.000	2.571	11.348	18.862	19.787	Continuing	Continuing
• B53800: *Laser Target Locator Systems*	37.975	32.704	24.354	-	24.354	13.913	20.839	23.773	24.182	Continuing	Continuing
• K35110: *Small Tactical Optical Rifle Mounted MLRF*	16.157	21.238	22.623	-	22.623	10.607	21.377	26.087	31.845	Continuing	Continuing
• BQ5: *Visual Augmentation System Advanced Development*	-	-	242.000	-	242.000	-	-	-	-	0.000	242.000
• BQ6: *Visual Augmentation System Eng Dev*	-	-	89.000	-	89.000	-	-	-	-	0.000	89.000
• K36402: *IVAS/Heads Up Display*	-	-	76.225	-	76.225	907.000	1,046.775	320.000	-	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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	Various : Various	5.083	15.912	Nov 2017	0.383	Nov 2018	0.394	Nov 2019	-		0.394	Continuing	Continuing	-
		Subtotal	5.083	15.912		0.383		0.394		-		0.394	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 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	8.301	Dec 2017	5.048	Dec 2018	3.397	Nov 2019	-		3.397	Continuing	Continuing	-
Pre-Shot Threat Detection (PTD)	MIPR	NVESD : FT BELVOIR, VA	7.543	-		-		0.280	Nov 2019	-		0.280	Continuing	Continuing	-
Family of Target Acquisition Laser (FTAL)	MIPR	NVESD : FT BELVOIR, VA	-	1.458		0.999	Jan 2019	-		-		-	Continuing	Continuing	-
Heads Up Display (HUD)	Various	Various : Various	-	461.235	Sep 2018	-		-		-		-	Continuing	Continuing	-
Lethality Smart System (LSS)	TBD	TBD : TBD	-	-		-		2.797	Nov 2019	-		2.797	Continuing	Continuing	-
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	-	-		0.269		-		-		-	Continuing	Continuing	-
		Subtotal	14.054	470.994		6.316		6.474		-		6.474	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : FT BELVOIR, VA	1.887	9.220	Nov 2017	0.642	Nov 2018	0.660	Nov 2019	-		0.660	Continuing	Continuing	-
		Subtotal	1.887	9.220		0.642		0.660		-		0.660	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support Test Activity	MIPR	Army Test and Evaluation Command : Varrious	0.600	5.690	Apr 2019	-		-		-		-	Continuing	Continuing	-
		Subtotal	0.600	5.690		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.624	501.816		7.341		7.528		-		7.528	Continuing	Continuing	N/A

Remarks

FY 2018 increase begins the development of the Integrated Visual Augmentation System (IVAS) Heads Up Display (HUD) 3.0.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
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*

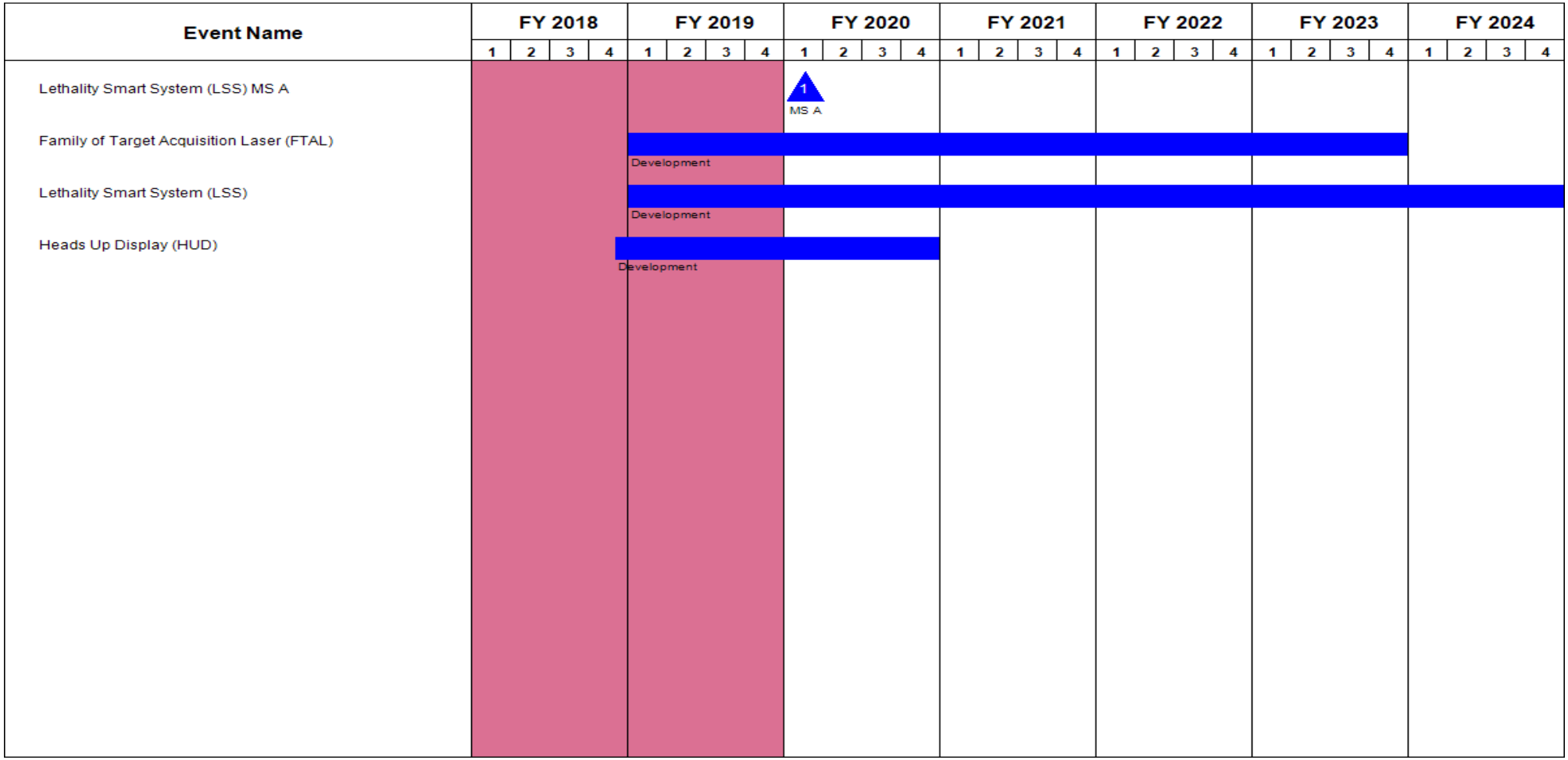

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Lethality Smart System (LSS) MS A	1	2020	1	2020
Family of Target Acquisition Laser (FTAL)	1	2019	4	2023
Lethality Smart System (LSS)	1	2019	4	2024
Heads Up Display (HUD)	4	2018	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / *Night Vision Systems Advanced Development*	Project (Number/Name) VT8 / *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	-	0.000	0.000	1.483	-	1.483	2.767	2.767	2.000	2.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project focuses on developing component technologies and representative prototype systems for 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 and GPS-contested environments. Component technology development will precede integration into specific systems and will include improved Precision Azimuth and Vertical Angle Measurement (PAVAM) devices; solid-state, improved lasers for range finding/designation/marking; electro-optical sensors such as infrared, near-infrared, ultra-violet, and visible spectrum imagers; sensor and data fusion; laser designator spot detection and imaging; integration of advanced power management technologies. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Precision Pointing and Navigation Component Development	-	-	1.483
Description: This project supports development of advanced components and prototype systems for Soldier-borne precision targeting devices. Dismounted Soldiers will have the capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets and battlefield threats 24/7, across a broader range of operating environments such as in all weather conditions, and in GPS-contested conditions. ***FY 2020 Plans:*** FY 2020 resources will be used to integrate Intra-Soldier Wireless capabilities into Soldier Precision Targeting Devices (SPTD) Fires portfolio. In addition, as the Army begins to introduce M-Code, the more robust north finding solution will be integrated into the Fires SPTD products. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** This increase is due to FY 2020 being the first year that the VT8/Soldier Precision Targeting Devices - Advanced Development is funded.			
Accomplishments/Planned Programs Subtotals	-	-	1.483

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT8 / *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• L76: *Dismounted Fire Support Laser Targeting Systems*	14.366	15.322	5.836	-	5.836	5.249	5.452	4.878	5.480	0.000	56.583
• L79: *Joint Effects Targeting Systems (JETS)*	7.824	10.463	7.810	-	7.810	5.571	5.608	5.040	5.609	0.000	47.925
• K32101: *JOINT EFFECTS TARGETING SYSTEM (JETS)*	38.664	66.574	69.720	-	69.720	69.714	69.707	69.701	69.694	0.000	453.774
• K32307: *LLDR 3*	-	-	0.000	-	0.000	31.364	54.425	59.123	61.841	Continuing	Continuing
• KA3100: *Mod Of In-Svc Equip (LLDR)*	9.172	24.833	6.044	-	6.044	-	-	-	-	0.000	40.049

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 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603774A / *Night Vision Systems Advanced Development*	Project (Number/Name) VT8 / *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	PM SSL : Ft. Belvoir, VA 22060	-	-		-		0.023	Nov 2019	-		0.023	Continuing	Continuing	-
		Subtotal	-	-		-		0.023		-		0.023	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Precision Pointing and Navigation	C/FFP	Various : Various	-	-		-		1.439	Dec 2019	-		1.439	Continuing	Continuing	-
		Subtotal	-	-		-		1.439		-		1.439	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : Ft. Belvoir, VA 22060	-	-		-		0.021	Nov 2019	-		0.021	Continuing	Continuing	-
		Subtotal	-	-		-		0.021		-		0.021	Continuing	Continuing	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		0.000		1.483		-		1.483	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT8 / *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*

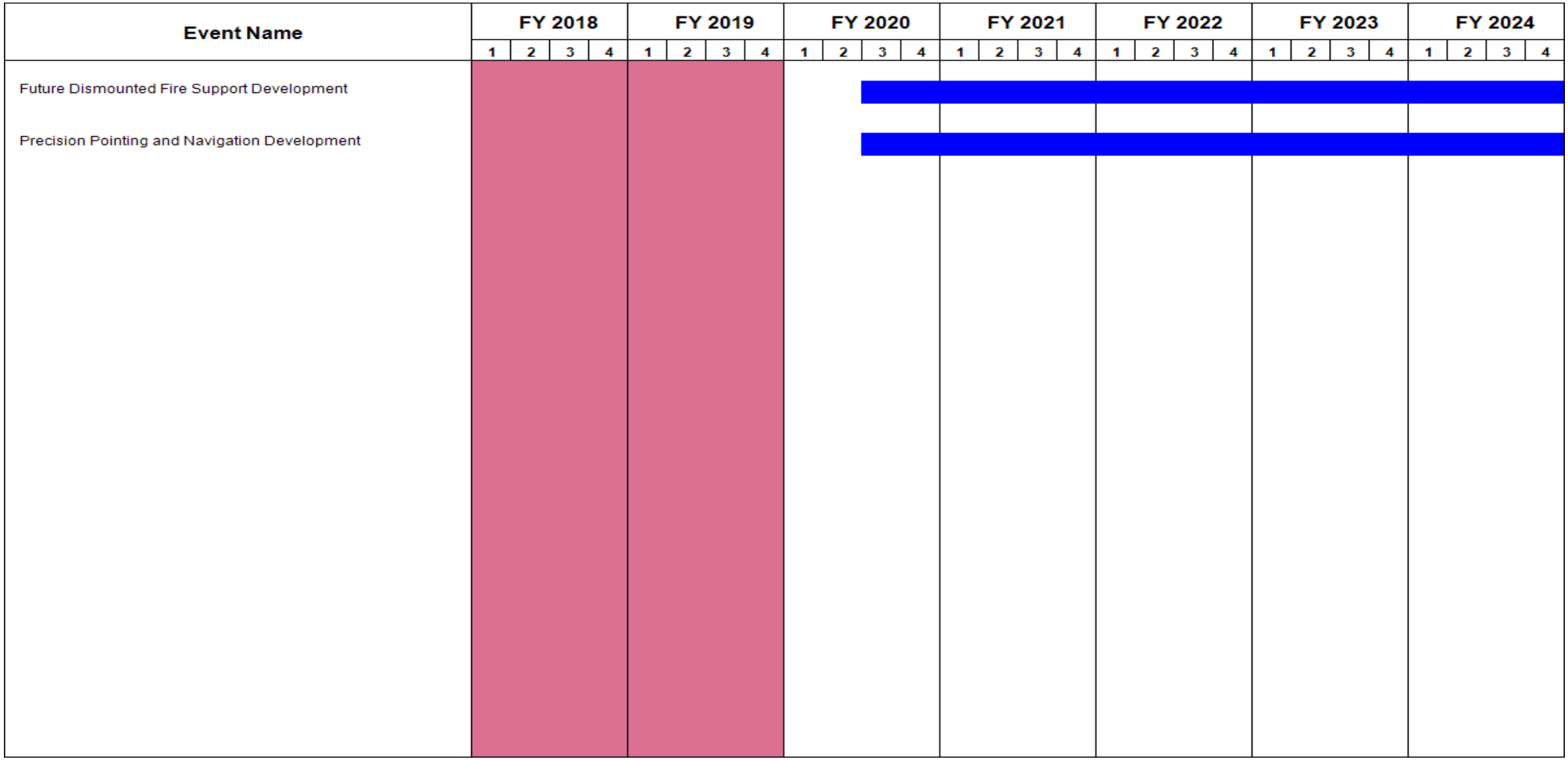

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT8 / *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Future Dismounted Fire Support Development	3	2020	4	2024
Precision Pointing and Navigation Development	3	2020	4	2024