Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	-	192.530	15.429	18.000	-	18.000	-	-	-	-	-	-
BQ5: *Visual Augmentation System Advanced Development*	-	185.328	5.475	11.699	-	11.699	-	-	-	-	-	-
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	5.780	7.289	3.777	-	3.777	-	-	-	-	-	-
VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	-	1.422	2.665	2.524	-	2.524	-	-	-	-	-	-

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) This project evaluates and integrates technologies and representative prototype systems transitioning from the Science and Technology (S&T) stage. It focuses on developing the next generation augmented vision and situational awareness system that provides the Soldier with the ability to fight, rehearse, train and win during multi-domain operations. Funded efforts will accelerate the development of components, terrain shared coordinate data and processing, algorithms including machine learning/artificial intelligence and demonstrations in support of the next generation augmented vision and situational awareness system. Efforts will provide rapid decision making and targeting capabilities with the integration of external video and data sources such as weapon sights, unmanned air and ground vehicles and other data sources enabled by tactical cloud package and advanced network services. This project will provide data driven analytics to optimize unit performance and enhance lethality and to enable Synthetic Training Environment (STE) squad capability to perform live mixed reality training and rehearsing. This project includes costs for efforts associated with movement of information and high level processing, integration, and interface of products with the Soldiers' head, body, weapon, and transportation. 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. This project supports the Soldier Lethality Cross Functional Team.

Project VT7 (Soldier Maneuver Sensors-Advanced Development) enables development of emerging capabilities for the maneuver force, that are envisioned by the Soldier Lethality Cross Functional Team, the Maneuver Center of Excellence (MCoE), the Maneuver Capabilities Development Integration Directorate (MCDID), the Science and Technology (S&T) community, industry partners or the acquisition workforce that may provide the Soldier or Squad increased capability to "fight, win and survive, day and night, in a multi- domain environment now and tomorrow". This project also allows pursuit of technology breakthroughs that challenge current technical solutions and have the potential for providing increased Soldier performance. This effort focuses on capabilities that enable modernization of Soldier sensor and laser devices, including digital features and enhanced solutions including maneuver capabilities to detect, recognize and identify targets, and to provide target acquisition and handoff capabilities to mitigate threats. The integration of higher performing multi-spectral sensors with smart processing will provide adjusted weapon

sight reticles and leverage network connectivity for improved situational awareness/understanding. Additional project capabilities include advanced optical components and assemblies and techniques for signature management, resiliency across the electromagnetic spectrum, and integration of a modular design structure for target acquisition applications including support for wireless data transfer, passive range determination, technologies for working in a GPS contested environment, advanced GPS replacement technologies and mitigation of manned and unmanned threat sensor systems. This project supports efforts to evaluate and integrate technologies and representative prototype systems including Micro Electronics Modules (MEMS) technology with improved size, weight and power for development of modernized Soldier sensor capabilities transitioning from the S&T stage to operational use. This project includes costs for efforts associated with development, certification, verification and validation of interface products into the Adaptive Squad Architecture (ASA). This project also includes development of tools and emulators of ASA components. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

Project VT8 (Soldier Precision Targeting Devices - Advanced Development) enables development of emerging capabilities for the maneuvers and fires community, that are envisioned by the Soldier Lethality Cross Functional Team, the Maneuver Center of Excellence (MCoE), the Fires Center of Excellence (FCoE), the Maneuver Capabilities Development Integration Directorate (MCDID), the Science and Technology (S&T) community, industry partners or the acquisition workforce that may provide the Soldier or Squad increased capability to "fight, win and survive, day and night, in a multi- domain environment now and tomorrow." This project also allows pursuit of technology breakthroughs that challenge current technical solutions and have the potential for providing increased Soldier performance. 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. The effort will consider emerging Micro-Electronic Modules (MEMs) technologies for improved efficiency and performance. Efforts will improve the Soldier's ability to precisely locate and designate targets across a broader range of operating environments, including all weather conditions, GPS-contested environments using active and passive methodologies and technologies. 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. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	200.791	24.316	22.282	-	22.282
Current President's Budget	192.530	15.429	18.000	-	18.000
Total Adjustments	-8.261	-8.887	-4.282	-	-4.282
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-8.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-8.261	-0.887			
• Adjustments to Budget Years	-	-	-4.282	-	-4.282

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
BQ5: *Visual Augmentation System Advanced Development*	-	185.328	5.475	11.699	-	11.699	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project evaluates and integrates technologies and representative prototype systems transitioning from the Science and Technology (S&T) stage. It focuses on developing the next generation augmented vision and situational awareness system that provides the Soldier with the ability to fight, rehearse, train and win during multi-domain operations. Funded efforts will accelerate the development of components, terrain shared coordinate data and processing, algorithms including machine learning/artificial intelligence and demonstrations in support of the next generation augmented vision and situational awareness system. Efforts will provide rapid decision making and targeting capabilities with the integration of external video and data sources such as weapon sights, unmanned air and ground vehicles and other data sources enabled by tactical cloud package and advanced network services. This project will provide data driven analytics to optimize unit performance and enhance lethality and to enable Synthetic Training Environment (STE) squad capability to perform live mixed reality training and rehearsing. This project includes costs for efforts associated with movement of information and high level processing, integration, and interface of products with the Soldiers' head, body, weapon, and transportation. 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. This project supports the Soldier Lethality Cross Functional Team.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Heads Up Display (HUD)	185.328	5.475	11.107
Description: Integrated Visual Augmentation System (IVAS) HUD provides a first generation single platform for Soldier/Marines to fight, rehearse, and train in day and night that provides increased lethality, mobility, and situational awareness necessary to achieve overmatch against our current and future adversaries.			
FY 2021 Plans: Completed Capability Set 4 design, Cold Weather Test, Tropic Weather Test, and Soldier Touch Point 4 (30 April 2021). Will complete all Developmental Testing and preparations for Initial Operational Test and Evaluation (August 2021).			
FY 2022 Plans: Develop technology improvements to IVAS focused on sensor performance (low light and high resolution binocular thermal), wireless communications, reduced weight, and improved usability (Soldier Authentication). Soldier Authentication capability was developed by the Government and improves Soldier experience and security. Develop advanced artificial intelligence/machine learning mission planning and performance tools using the IVAS Software Development Kits (SDKs). These tools will extend IVAS capabilities and be driven by Soldier Centered Design activities. Begin market research and technology assessments in			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
order to establish the acquisition strategy for the second generation of IVAS capability with consideration for classified usage, reduced size/weight and greater combat helmet and CBRNE integration. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increased from $5.475 million in FY21 to $11.699 million in FY22 due to $10M reduction in FY21 budget enactment.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	-	0.592
Accomplishments/Planned Programs Subtotals	185.328	5.475	11.699

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• K36402: *IVAS/Heads Up Display*	-	670.476	853.864	-	853.864	-	-	-	-	-	-
• BQ6: *Visual Augmentation System Eng Dev*	60.599	7.495	4.934	-	4.934	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	VARIOUS : VARIOUS	-	-		2.697		0.335	Nov 2021	-		0.335	0.000	3.032	-
		Subtotal	-	-		2.697		0.335		-		0.335	0.000	3.032	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Heads Up Display (HUD)	C/FFP	Microsoft : Redmond, WA	-	185.328	Mar 2020	-		-		-		-	0.000	185.328	-
Heads Up Display (HUD)	TBD	To Be Determined : To Be Determined	-	-		-		10.180		-		10.180	0.000	10.180	-
		Subtotal	-	185.328		-		10.180		-		10.180	0.000	195.508	N/A

Remarks

For FY 2022, Product Development of the Heads Up Display (HUD) includes: binocular thermal development, low light sensor enhancements, and Mission planning/execution Tools (App development).

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : Fort Belvoir, Virginia 22060	-	-		2.778	Nov 2020	1.184	Nov 2021	-		1.184	0.000	3.962	-
		Subtotal	-	-		2.778		1.184		-		1.184	0.000	3.962	N/A

	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	185.328		5.475		11.699		-		11.699	0.000	202.502	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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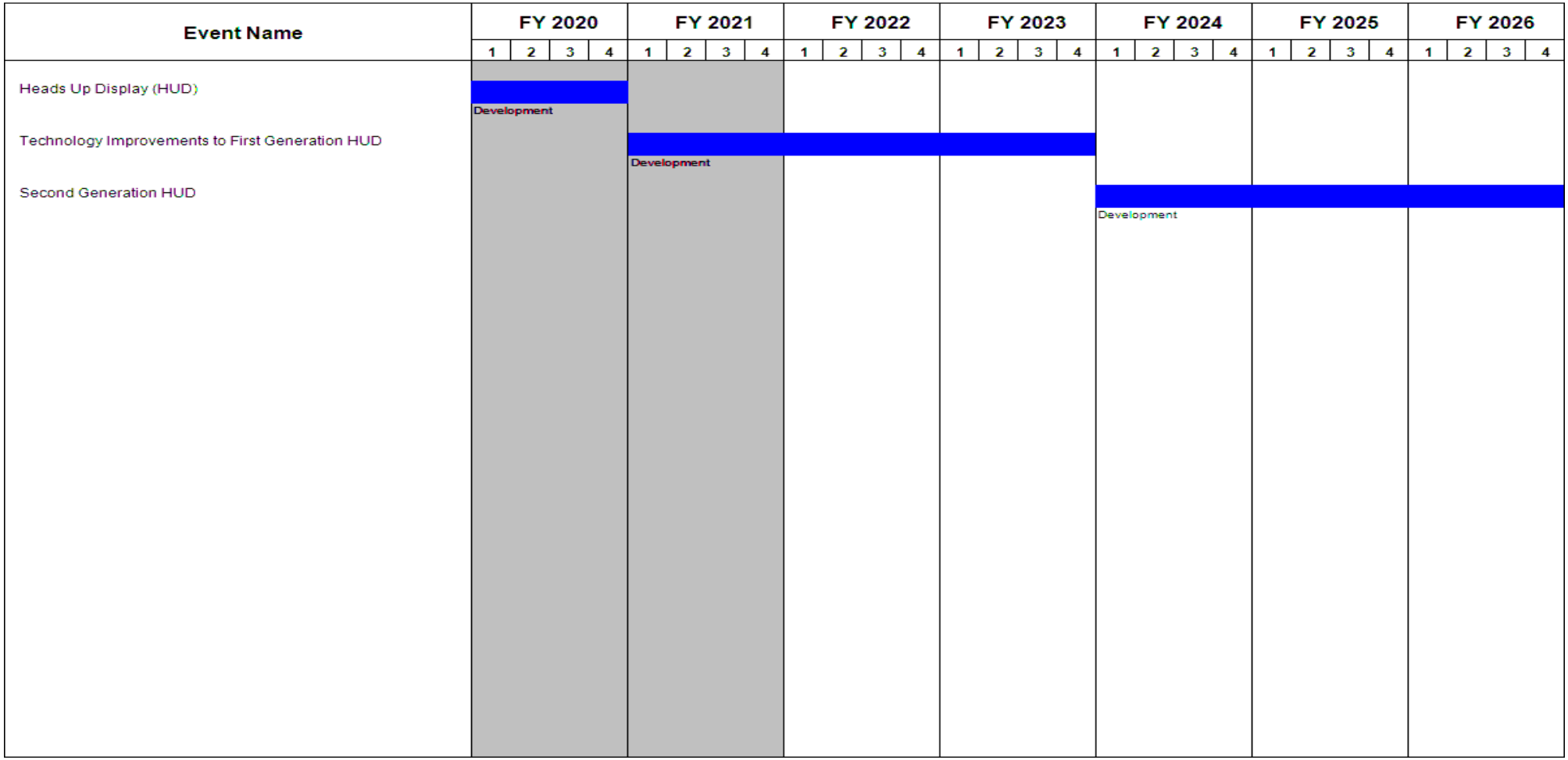

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** BQ5 / *Visual Augmentation System Advanced Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Heads Up Display (HUD)	4	2018	4	2020
Technology Improvements to First Generation HUD	1	2021	4	2023
Second Generation HUD	1	2024	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
VT7: *Soldier Maneuver Sensors - Adv Dev*	-	5.780	7.289	3.777	-	3.777	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables development of emerging capabilities for the maneuver force, that are envisioned by the Soldier Lethality Cross Functional Team, the Maneuver Center of Excellence (MCoE), the Maneuver Capabilities Development Integration Directorate (MCDID), the Science and Technology (S&T) community, industry partners or the acquisition workforce that may provide the Soldier or Squad increased capability to "fight, win and survive, day and night, in a multi- domain environment now and tomorrow". This project also allows pursuit of technology breakthroughs that challenge current technical solutions and have the potential for providing increased Soldier performance. This effort focuses on capabilities that enable modernization of Soldier sensor and laser devices, including digital features and enhanced solutions including maneuver capabilities to detect, recognize and identify targets, and to provide target acquisition and handoff capabilities to mitigate threats. The integration of higher performing multi-spectral sensors with smart processing will provide adjusted weapon sight reticles and leverage network connectivity for improved situational awareness/understanding. Additional project capabilities include advanced optical components and assemblies and techniques for signature management, resiliency across the electromagnetic spectrum, and integration of a modular design structure for target acquisition applications including support for wireless data transfer, passive range determination, technologies for working in a GPS contested environment, advanced GPS replacement technologies and mitigation of manned and unmanned threat sensor systems. This project supports efforts to evaluate and integrate technologies and representative prototype systems including Micro Electronics Modules (MEMS) technology with improved size, weight and power for development of modernized Soldier sensor capabilities transitioning from the S&T stage to operational use. This project includes costs for efforts associated with development, certification, verification and validation of interface products into the Adaptive Squad Architecture (ASA). This project also includes development of tools and emulators of ASA components. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Soldier Enhanced Sensing Capabilities	2.932	1.490	1.230
Description: Soldier Enhanced Sensing Capabilities provides the next generation vision capabilities for day and night that will reduce the Soldier's burden and allow hands free operation. Soldier Enhanced Sensing Capabilities will provide automatic adjustment of imagery and matched sensor fields of view. This effort will further enhancement of day/night Rapid Target Acquisition (RTA) capabilities by interfacing with Family of Weapon Sights-Individual (FWS-I), day/night data display for the Soldier Network Warrior End User Device/Computer (EUD) and the Integrated Vision Augmentation System (IVAS). This effort considers methods of obtaining range estimates without the use of active laser devices and extends the ability to send/receive data to the EUD to support advanced EUD applications by processing of sensor video, integrating it with external data sources, and producing advanced processed imagery with overlay data display. This effort will further work to reduce size, weight and power of sensor and laser components including consideration of MEMS technology and considers IVAS successes to explore			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
integrated digital, low profile, conformal day/night displays. This effort considers alternatives to potentially replace the aging fleet of fielded night vision devices with a digital Near-Infrared (NIR) device, a wide field of view device and/or a white phosphor night vision device. ***FY 2021 Plans:*** For FY 2021, in addition to continuing unfinished work initiated in FY 2020, integration and enhancements are expected in the Family of Weapon Sights and Small Tactical Optical Rifle Mounted programs of record. Migration from an Intra Soldier Wireless (ISW) 128-bit encryption to a 256-bit encryption solution and ultimately to an NSA certified 256-bit solution will be evaluated and appropriately acted upon for all Soldier Maneuver and Precision Targeting, ENVG-B employs Augmented Reality (AR) and Machine Learning (ML) capabilities. Investments are expected to solidify and enhance the supply of organic light emitting diodes for existing and emerging programs while work continues on advanced displays including waveguides and projection systems. Investments continue in multi-spectral devices that provide Soldiers capabilities beyond near peer adversaries. ***FY 2022 Plans:*** In addition to continuing unfinished work initiated in FY 2021, wireless integration and enhancements are expected in the Family of Weapon Sights and Small Tactical Optical Rifle Mounted programs of record including integration and evaluation of Intra Soldier Wireless (ISW) 256-bit encryption. In addition, NSA certified radio modules will be evaluated and considered for integration. FY22 includes technology development to improve robustness of the Augmented Reality (AR), Artificial Intelligence (AI) and Machine Learning (ML) capabilities in ENVG-B. Investments are expected to solidify and enhance the supply of organic light emitting diodes for existing and emerging programs while work continues on advanced displays including waveguides and projection systems. Investments continue in multi-spectral devices that provide Soldiers capabilities beyond near peer adversaries and help to determine the capabilities featured in the Night Vision Goggles-Next. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 slight decrease as component technologies have matured and synchronized with IVAS resources.			
Title: Target Acquisition Laser Capabilities ***Description:*** Target Acquisition Capabilities develops modular laser components and representative prototype systems to support target acquisition for pointing, ranging, target hand-off, detection and mitigation of threat sensors. This effort continues to explore non-standard electro-magnetic spectrum waveforms for exploitation in Soldier borne devices. This effort furthers development of a common laser range finding core for fire control and other laser capabilities based on Squad member Table of Organization and Equipment (TOE) position. Modules will be developed with full documentation, including specifications and interface control documents such that they support the Adaptive Soldier Architecture. This effort develops target acquisition capabilities to include, but is not limited to, augmented reality cues within target locators and target handoff capabilities that are less detectable, conducted wirelessly moving towards a covert target handoff, pointing, range finding capability, and technologies that enable self	2.848	2.563	0.720

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
and target location in a GPS contested environment. This effort also includes individual Soldier laser event recording and laser warning devices. This effort enables refinement of pre-shot threat detection systems. ***FY 2021 Plans:*** For FY 2021, resources will be used for development of modular laser components and prototype devices that leverage interface control documents and the Adaptive Squad Architecture. Integration of interfaces such as Intra-Soldier Wireless and an Intelligent/ Powered Rail will support a modular system-of-systems approach for target acquisition, pointing, ranging, and target hand-off. ***FY 2022 Plans:*** Resources will be used for development of modular components and prototype devices that leverage interface control documents and the Adaptive Squad Architecture. Integration of interfaces such as Intra-Soldier Wireless and an Intelligent/Powered Weapons Rails will support a modular system-of-systems approach for target acquisition, pointing, ranging, and target hand-off. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 decrease funding as laser capabilities integrated into Advanced Sensor Development will transition to RDTE 6.5 EMD.			
Title: Advanced Sensor Development ***Description:*** Advanced Sensor Development is the next generation weapon target acquisition system for use on Next Generation Squad Weapons (NGSW). The increased Advanced Sensor Development of all digital capabilities includes, but is not limited to: wireless remote weapon sight viewing compatibility with the emerging goggle solutions Night Vision Systems (NVS) including Integrated Vision Augmentation System (IVAS)) to provide a heads up Rapid Target Acquisition (RTA) capability; wireless interface with the future Soldier processing component to exchange Mission Command information; day and night capabilities to image in multiple spectral bands; target interrogation; laser range finding; target handoff with coded sources; adjusted and displaced reticule; facial recognition capabilities at tactical ranges and connectivity to the intelligent / powered weapon rail. ***FY 2021 Plans:*** Plans to integrate advanced capabilities, employ system engineering principals in support of the Adaptive Squad Architecture and refine capability emergence from lab to Program Management responsibility. ***FY 2022 Plans:*** Continue development of Advanced Weapon Sight for integration with the Next Gen Squad Weapon. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	-	2.596	0.636

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 to FY 2022 increase in required funding as IVAS matured some component technology ahead of schedule. Funding increase also represents a re-alignment of funding line dollars to meet highest priority requirements.			
Title: Adaptive Squad Architecture (ASA) Tools ***Description:*** This project contains tools and services that support the Adaptive Squad Architecture (ASA) integration effort. This project considers emerging products as well as legacy products for size, weight and power efficiencies. This project develops interface control documentation for integration into the ASA, Next Gen Squad Weapon power / intelligent rail and enables upgrades, enhancements, certifications, validation, verification of evolving Intra-Soldier Wireless products. ASA will pursue a common weapon remote to operate all weapon enablers. This project supports certification of new ISW encryption solutions requisite re-certification needs, ISW enhancement and costs associated with ISW bug fixes. ***FY 2021 Plans:*** Strategically plan for Soldier Integration Faciltiy and ASA support, NGSW integration and ISW growth. ***FY 2022 Plans:*** Plans to integrate advanced capabilities, employ system engineering principals in support of the Adaptive Squad Architecture and refine capability emerging from Science and Technology to Program Management responsibility. Strategically plan for Soldier Integration Facility and ASA support, NGSW integration and ISW growth. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 increase is due to ASA development in FY 2021 that continues to identify and capture resources required for enduring support to the ASA mission. Funding increase also represents a re-alignment of funding line dollars to meet highest priority requirements.	-	0.640	1.191
Accomplishments/Planned Programs Subtotals	5.780	7.289	3.777

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• L67: *Soldier Night Vision Devices*	31.118	12.318	32.747	-	32.747	-	-	-	-	-	-
• K22002: *FWS-INDIVIDUAL*	81.541	83.820	147.271	-	147.271	-	-	-	-	-	-
• K22003: *FWS-CREW SERVED*	-	-	25.673	-	25.673	-	-	-	-	-	-
• K22004: *FWS-SNIPER*	-	2.569	11.201	-	11.201	-	-	-	-	-	-
• B53800: *Laser Target Locator Systems*	30.382	14.347	20.571	-	20.571	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• K35110: *Small Tactical Optical Rifle Mounted MLRF*	22.623	7.715	21.103	-	21.103	-	-	-	-	-	-
• K36402: *IVAS/Heads Up Display*	-	670.476	853.864	-	853.864	-	-	-	-	-	-
• BQ5: *Visual Augmentation System Advanced Development*	185.328	5.475	11.699	-	11.699	-	-	-	-	-	-
• BQ6: *Visual Augmentation System Eng Dev*	60.599	7.495	4.934	-	4.934	-	-	-	-	-	-
• K36400: *Helmet Mounted Enhanced Vision Devices*	50.632	183.000	217.906	-	217.906	-	-	-	-	-	-

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-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	Various : Various	0.406	0.725	Dec 2019	0.666	Feb 2021	0.350	Dec 2021	-		0.350	Continuing	Continuing	-
		Subtotal	0.406	0.725		0.666		0.350		-		0.350	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Soldier Enhanced Sensing Capabilities	MIPR	NVESD : FT BELVOIR, VA	5.262	1.891	Feb 2020	1.490	Mar 2021	1.230	Jan 2022	-		1.230	Continuing	Continuing	-
Target Acquisition Laser Capabilities	MIPR	NVESD : FT BELVOIR, VA	1.023	1.806	Jan 2020	2.353	Dec 2020	0.720	Jan 2022	-		0.720	Continuing	Continuing	-
Advanced Sensor Development	TBD	TBD : TBD	-	-		2.040	Mar 2021	0.136	Jan 2022	-		0.136	Continuing	Continuing	-
Adaptive Squad Architecture (ASA) Tools	TBD	TBD : TBD	-	-		0.389	Mar 2021	1.191	Jan 2022	-		1.191	Continuing	Continuing	-
		Subtotal	6.285	3.697		6.272		3.277		-		3.277	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : FT BELVOIR, VA	0.381	1.358	Jan 2020	0.351	Mar 2021	0.150	Dec 2021	-		0.150	Continuing	Continuing	-
		Subtotal	0.381	1.358		0.351		0.150		-		0.150	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.072	5.780		7.289		3.777		-		3.777	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

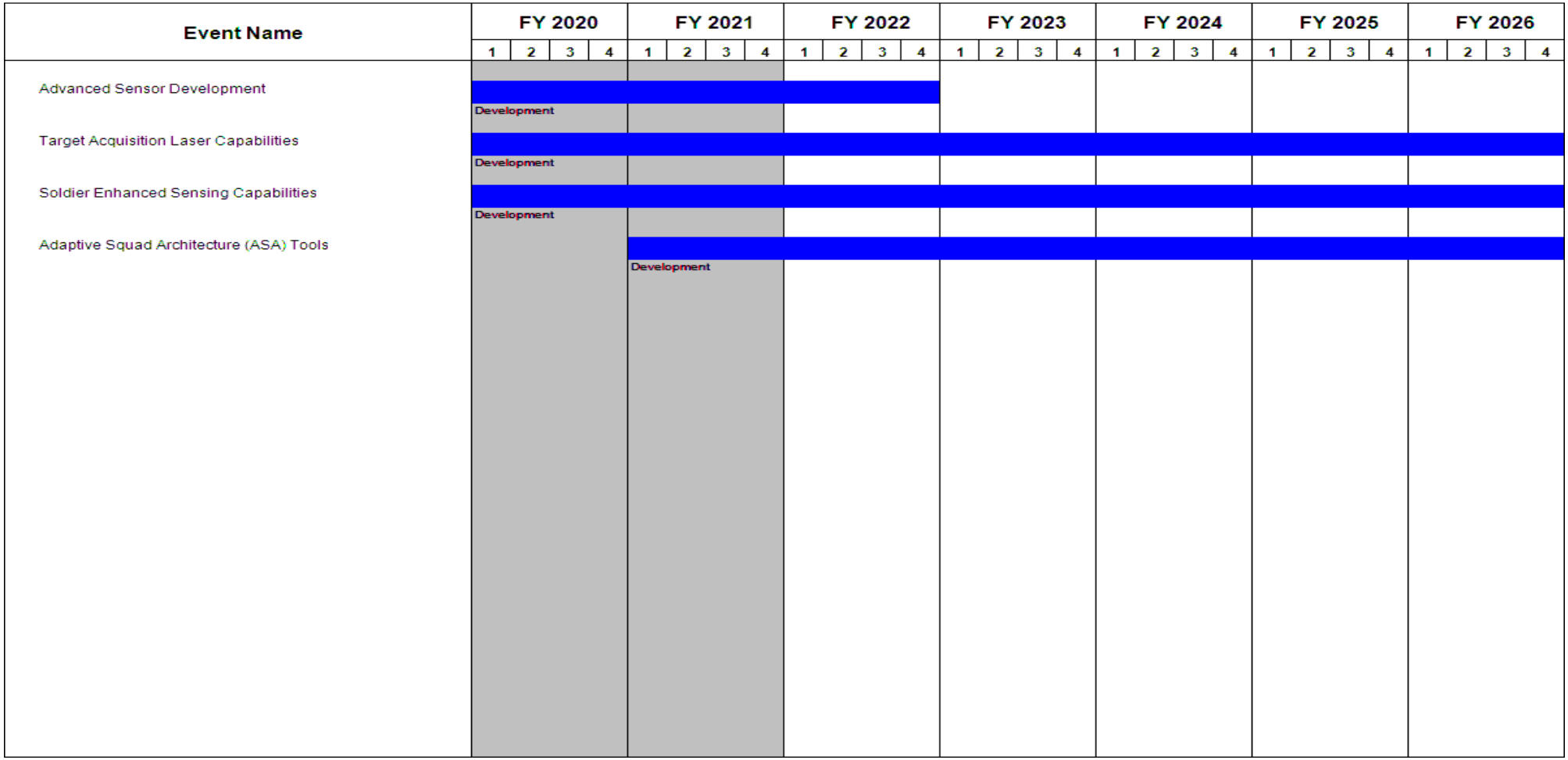

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT7 / *Soldier Maneuver Sensors - Adv Dev*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Sensor Development	1	2019	4	2022
Target Acquisition Laser Capabilities	1	2019	4	2026
Soldier Enhanced Sensing Capabilities	1	2019	4	2026
Adaptive Squad Architecture (ASA) Tools	1	2021	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	-	1.422	2.665	2.524	-	2.524	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables development of emerging capabilities for the maneuvers and fires community, that are envisioned by the Soldier Lethality Cross Functional Team, the Maneuver Center of Excellence (MCoE), the Fires Center of Excellence (FCoE), the Maneuver Capabilities Development Integration Directorate (MCDID), the Science and Technology (S&T) community, industry partners or the acquisition workforce that may provide the Soldier or Squad increased capability to "fight, win and survive, day and night, in a multi- domain environment now and tomorrow." This project also allows pursuit of technology breakthroughs that challenge current technical solutions and have the potential for providing increased Soldier performance. 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. The effort will consider emerging Micro-Electronic Modules (MEMs) technologies for improved efficiency and performance. Efforts will improve the Soldier's ability to precisely locate and designate targets across a broader range of operating environments, including all weather conditions, GPS-contested environments using active and passive methodologies and technologies. 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 2020	FY 2021	FY 2022
Title: Precision Pointing and Navigation Component Development	1.422	2.665	2.524
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, in GPS-contested conditions using active and passive methodologies and technologies.			
FY 2021 Plans: FY 2021 resources will be used for development of component technologies and initial sub-system integration for Precision Azimuth and Vertical Angle Measurement (PAVAM) devices with reduced size, weight, and power. Additionally, FY 2021 resources will continue integration of M-Code into Dismounted Fires systems to improve operational capabilities in a GPS-contested environment.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Resources will continue the development of component technologies and mature sub-system integration for Precision Azimuth and Vertical Angle Measurement (PAVAM) devices to achieve reduced size, weight and power. These resources will also continue to develop technologies that allow precision targeting systems to operate in GPS-contested environments. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decrease is due to a minor change in funding.			
Accomplishments/Planned Programs Subtotals	1.422	2.665	2.524

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• L79: *Joint Effects Targeting Systems (JETS)*	6.146	5.363	5.116	-	5.116	-	-	-	-	-	-
• K32101: *JOINT EFFECTS TARGETING SYSTEM (JETS)*	25.330	54.206	62.082	-	62.082	-	-	-	-	-	-
• KA3100: *Mod Of In-Svc Equip (LLDR)*	6.044	-	-	-	-	-	-	-	-	-	-

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-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	PM SSL : Ft. Belvoir, VA 22060	-	0.041	Sep 2020	0.089	Feb 2021	0.090	Nov 2021	-		0.090	Continuing	Continuing	-
		Subtotal	-	0.041		0.089		0.090		-		0.090	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Precision Pointing and Navigation	C/FFP	Various : Various	-	1.314	Mar 2020	2.102	Mar 2021	2.195	Jan 2022	-		2.195	Continuing	Continuing	-
		Subtotal	-	1.314		2.102		2.195		-		2.195	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix Support	MIPR	NVESD : Ft. Belvoir, VA 22060	-	0.067	Apr 2020	0.028	Feb 2021	0.056	Nov 2021	-		0.056	Continuing	Continuing	-
Science and Engineering Support	SS/CPFF	Johns Hopkins University : Laurel, MD	-	-		0.446	Apr 2021	0.183	Feb 2022	-		0.183	Continuing	Continuing	-
		Subtotal	-	0.067		0.474		0.239		-		0.239	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.422		2.665		2.524		-		2.524	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
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*

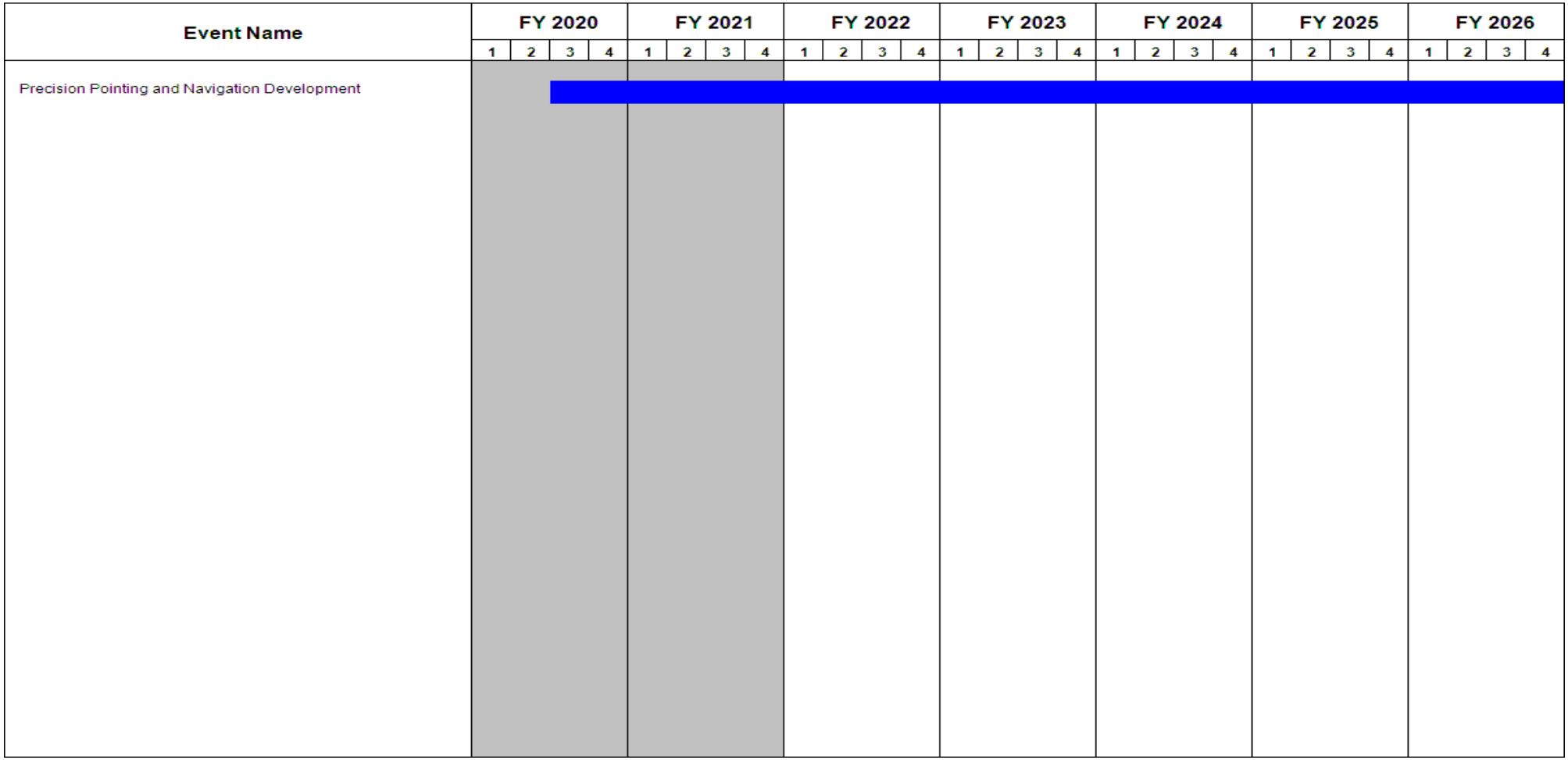

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603774A / *Night Vision Systems Advanced Development*	**Project (Number/Name)** VT8 / *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Precision Pointing and Navigation Development	3	2020	4	2026