Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng 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
Total Program Element	-	135.283	54.234	62.690	-	62.690	-	-	-	-	-	-
BQ6: *Visual Augmentation System Eng Dev*	-	60.599	7.495	4.934	-	4.934	-	-	-	-	-	-
L67: *Soldier Night Vision Devices*	-	31.118	12.318	32.747	-	32.747	-	-	-	-	-	-
L70: *Night Vision Dev Ed*	-	37.420	29.058	19.893	-	19.893	-	-	-	-	-	-
L79: *Joint Effects Targeting Systems (JETS)*	-	6.146	5.363	5.116	-	5.116	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

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

Project BQ6 This project focuses on transitioning demonstrated technologies that bring improvements to the dismounted Soldier's augmented vision and situational awareness system and provide Soldiers with the ability to fight, rehearse, train and win during multi-domain operations. Funded efforts will accelerate the implementation 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 for 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 L67 project develops, improves and miniaturizes high performance electro-optics, thermal and laser systems. It also provides for systems integration of related multi-sensor suites to enable near to long-range target acquisition and engagement as well as improved battlefield command and control in around-the-clock combat operations. It focuses on adapting demonstrated technologies that bring improvements to the dismounted Soldiers' equipment. This project develops or enhances equipment that provides the individual Soldier's day/night situational awareness and individual targeting capability. This project includes cost associated with efforts

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*

for the development, integration and interface of products on Soldiers head, body and weapons. Funding in this project supports the Army's Soldier Lethality Cross Functional Teams (SL CFT) initiatives. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

Project L70 focuses on night vision, reconnaissance, surveillance and target acquisition (RSTA) sensor and suites of sensors to provide well-defined surveillance and targeting capabilities for a variety of Current, Modular, and Future Force platforms. This project includes: 3rd Generation Forward Looking Infra-Red (3GEN FLIR) B-Kit development activities, the 3GEN Long Range Advanced Scout Surveillance System (LRAS3) Modification Work Order (MWO) to integrate 3GEN FLIR B-Kit, and the Assistant Secretary of the Army for Acquisition, Logistics, and Technology ASA(ALT) Common Operating Environment (COE) effort to meet sensor interoperability requirements and improve the soldier-machine interface of the Program of Record (POR).

Project L79 is an Army program with joint information (Air Force and Marine Corps). JETS addresses the one-man, hand-held precision targeting gap identified by the Fires Center of Excellence (FCoE). JETS is a light-weight, handheld system that will provide the single dismounted observer with a common, enhanced day and night thermal capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets. JETS Target Location and Designation System (TLDS) will be able to interface with existing and future Forward Entry Systems (FESs) and operate in environments where global positioning system (GPS) capabilities are degraded or denied including the integration of military GPS user equipment (M-Code) GPS receivers, when they become available. This project will address continued development and integration of improved precision targeting components to reduce size, weight, power, and cost of systems for dismounted precisions Fires mission. Funding in this project aligns with the 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	143.696	61.445	38.094	-	38.094
Current President's Budget	135.283	54.234	62.690	-	62.690
Total Adjustments	-8.413	-7.211	24.596	-	24.596
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.968			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.500	-			
• SBIR/STTR Transfer	-5.913	-2.243			
• Adjustments to Budget Years	-	-	24.596	-	24.596

Change Summary Explanation

The funding increase supports the developmental efforts for the Night Vision Goggle Modernization Strategy

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** BQ6 / *Visual Augmentation System Eng 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
BQ6: *Visual Augmentation System Eng Dev*	-	60.599	7.495	4.934	-	4.934	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project focuses on transitioning demonstrated technologies that bring improvements to the dismounted Soldier's augmented vision and situational awareness system and provide Soldiers with the ability to fight, rehearse, train and win during multi-domain operations. Funded efforts will accelerate the implementation 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 for 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)	60.599	7.495	4.685
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 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: Perform Systems Engineering/Program Management and integration to implement engineering changes to higher resolution thermal sensors, and app development to enhance mission planning and mission execution based on Soldier centered design input. These tools will extend IVAS capabilities and be driven by Soldier Centered Design activities. Conduct testing to verify operational performance of all production changes.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** BQ6 / *Visual Augmentation System Eng Dev*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Funding decreased as IVAS transitions to its first year of full rate production and fielding.			
Title: SBIR/STTR Transfer	-	-	0.249
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			
Accomplishments/Planned Programs Subtotals	60.599	7.495	4.934

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	-	-	-	-	-	-
• BQ5: *Visual Augmentation System Advanced Development*	185.328	5.475	11.699	-	11.699	-	-	-	-	-	-

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
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** BQ6 / *Visual Augmentation System Eng 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	Various : Various	-	16.561	Feb 2020	0.774	Nov 2020	-		-		-	Continuing	Continuing	-
		Subtotal	-	16.561		0.774		-		-		-	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
Heads Up Display (HUD)	Various	Various : Various	-	27.710	Mar 2020	-		2.334	Mar 2022	-		2.334	Continuing	Continuing	-
		Subtotal	-	27.710		-		2.334		-		2.334	Continuing	Continuing	N/A

Remarks

For FY 2022, Product Development implements an engineering change to higher resolution thermal sensors, and app development to enhance mission planning.

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	Various : Various	-	11.823	Feb 2020	-		0.600	Nov 2021	-		0.600	Continuing	Continuing	-
		Subtotal	-	11.823		-		0.600		-		0.600	Continuing	Continuing	N/A

Test and Evaluation ($ 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
IVAS HUD Testing	MIPR	Various : Various	-	4.505	Mar 2020	6.721	Jan 2021	2.000	Mar 2022	-		2.000	Continuing	Continuing	-
		Subtotal	-	4.505		6.721		2.000		-		2.000	Continuing	Continuing	N/A

Remarks

For FY 2022, Test & Evaluation conducts testing to verify operational performance of all production changes.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / *Night Vision Systems - Eng Dev*	Project (Number/Name) BQ6 / *Visual Augmentation System Eng Dev*	

	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	-	60.599		7.495		4.934		-		4.934	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** BQ6 / *Visual Augmentation System Eng Dev*

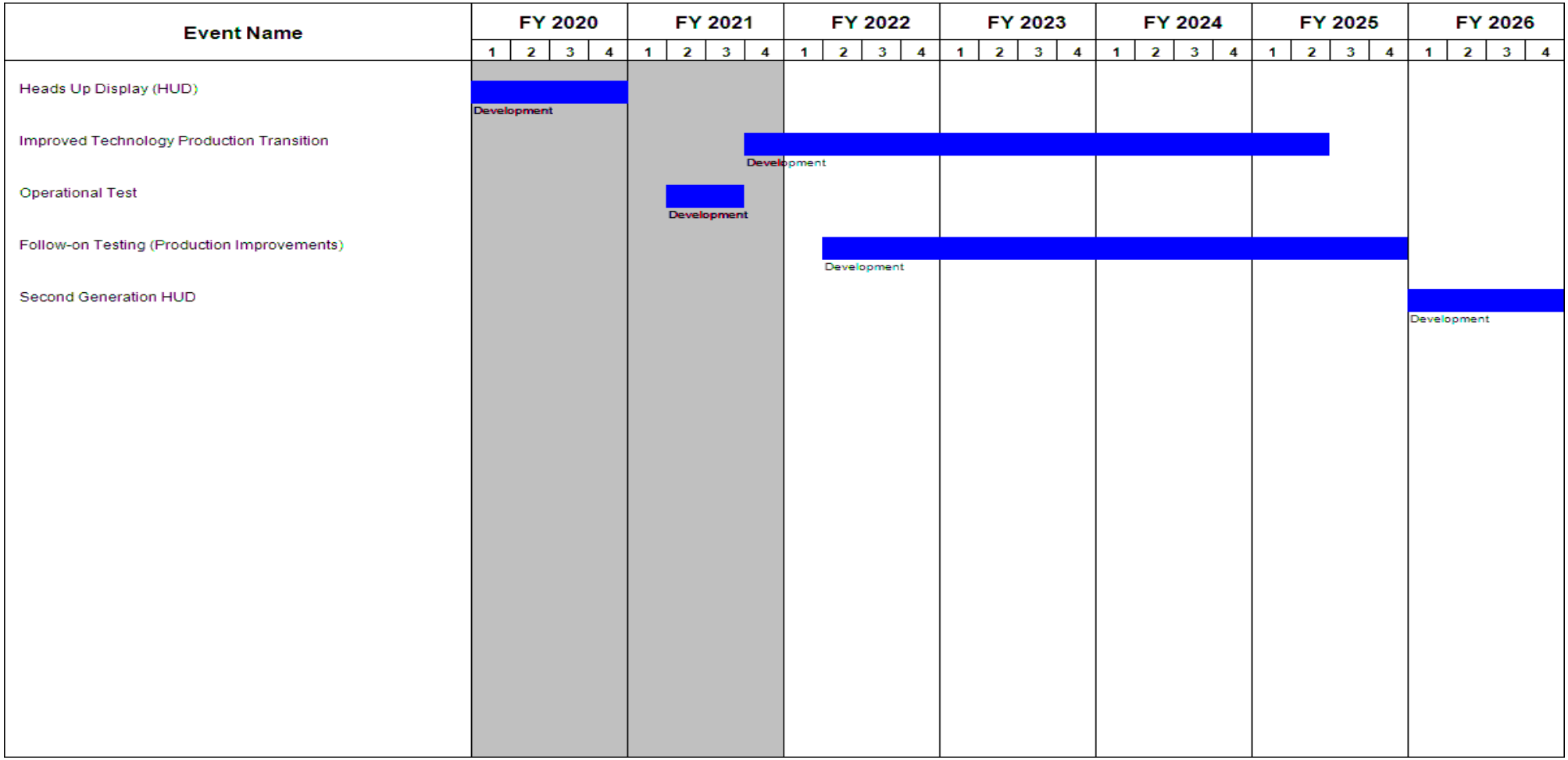

Exhibit R-4A, **RDT&E Schedule Details:** PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** BQ6 / *Visual Augmentation System Eng Dev*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Heads Up Display (HUD)	4	2018	4	2020
Improved Technology Production Transition	4	2021	2	2025
Operational Test	2	2021	3	2021
Follow-on Testing (Production Improvements)	2	2022	4	2025
Second Generation HUD	1	2026	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*	

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
L67: *Soldier Night Vision Devices*	-	31.118	12.318	32.747	-	32.747	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops, improves and miniaturizes high performance electro-optics, thermal and laser systems. It also provides for systems integration of related multi-sensor suites to enable near to long-range target acquisition and engagement as well as improved battlefield command and control in around-the-clock combat operations. It focuses on adapting demonstrated technologies that bring improvements to the dismounted Soldiers' equipment. This project develops or enhances equipment that provides the individual Soldier's day/night situational awareness and individual targeting capability and supports the Night Vision Goggles Modernization Strategy. This project includes cost associated with efforts for the development, integration and interface of products on Soldiers head, body and weapons. Funding in this project supports the Army's Soldier Lethality Cross Functional Teams (SL CFT) initiatives. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Family of Weapon Sights (FWS)	20.646	5.546	6.561

Description: There are three variants in the Family of Weapon Sights: FWS-Individual (FWS-I), FWS-Crew Served (FWS-CS) and FWS-Sniper (FWS-S). These sights enable combat forces to acquire and engage targets with small arms and conduct surveillance and fire control under day/night obscurants, no-light, and adverse weather conditions. The FWS utilizes advancements in thermal and low light level sensors to produce sights operable in-line with a day optic or in stand-alone mode. This RDT&E project integrates smaller pixel thermal detectors/imagers in high definition formats with improved sensitivity, clarity, and range, while simultaneously reducing the size, weight and power consumption for all FWS variants and provides a minimum of a 20% overmatch for each of the weapon platforms they are intended.

The FWS-I variant is a weapon mounted thermal sensor that enables Soldiers to fire quickly and accurately from any carry position and with significantly reduced exposure to enemy fire by providing a wirelessly transmitted zeroed weapon aimpoint in the Soldier's Enhanced Night Vision Goggle, helmet mounted display, or Integrated Visual Augmentation System. FWS-I requires RDT&E in FY 2022-2025 to qualify a second vendor in production, but additional capacity is required due to AAO increasing from 36K to 120K.

The FWS-CS variant leverages the success of the FWS-I development effort, and will be the primary sight for the MK19, M240B and M2. The FWS-CS system integrates High Definition (HD) Thermal and Day Color imagers, an Integrated Laser Range Finder (ILRF) and ballistic calculator to provide Soldiers with an accurate aimpoint that adjusts automatically for range, ammunition

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
characteristics, vertical angle, and weapon cant. The FWS-CS includes a wireless HD Helmet Mounted Display (HMD) that receives weapon sight imagery allowing the Soldier to utilize the weapon sight without requiring them to look through the weapon sights eyepiece. This wireless HMD provides the opportunity for the Solder to stay in a protected, unexposed posture while still accurately detecting and engaging targets. Additionally, the FWS-CS will integrate into Adaptive Squad Architecture and wirelessly share video and data with the Night Vision Systems (NVS) and the Nett Warrior End User Device (EUD). All wireless communication will be through the Intra Soldier Wireless (ISW) Network. The FWS-S variant utilizes a HD thermal sensor and mounts in-line with the Sniper's direct view optic providing a thermal capability without the need to remove or re-boresight the current direct view optic. The FWS-S provides Snipers a large format display with increased pixel density that enables accurate long range engagements in all battlefield conditions while utilizing the direct view optic?s aiming features, extending lethality and providing exceptional observation. ***FY 2021 Plans:*** In FY 2021, FWS-CS utilizes RDT&E funding to continue the Intra-Soldier Wireless (ISW) requirement to incorporate the 256-bit encryption technology. The end state is for all production FWS-CS systems to be ISW 256-bit encryption compliant. Also during FY 2021 FWS-CS will conduct operational testing. In FY2021, based on User feedback, a FWS-S stop work order was issued and the Army's focus may be redirected towards pursuing a Government Off The Shelf (GOTS) solution through a potential Directed Requirement (DR). GOTS systems may be procured to conduct a Limited Users Test (LUT) in conjunction with Growth Reliability Testing during the 4QFY2021. ***FY 2022 Plans:*** In FY 2022, FWS-I requires RDT&E funding to complete design work and execute Government qualification testing for a second vendor. In FY 2022, FWS-CS will continue operational testing during LRIP including PQT-G, RGT-2, and Airborne testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 increase is due to RDT&E FWS-I requirement to qualify a second vendor for production.			
Title: Enhanced Night Vision Goggle - Binocular (ENVG-B) ***Description:*** The ENVG-B system is a modular helmet-mounted, passive electro-optical fused sensor imaging device in a binocular configuration. The system integrates dual Image Intensification (I2) sensors with the thermal sensor imagery into a single viewing display. The thermal sensor provides the Soldier with the capability to rapidly detect and recognize human-sized targets in adverse weather, obscurants and in varying light conditions. The dual I2 sensors provide the Soldier with depth	4.600	3.000	3.884

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
perception for ease of low-light level maneuvers and the ability to detect rifle-mounted aiming lights to engage targets. The ENVG-B can also be operated in a monocular configuration by moving one of the two individually rotating monoculars. The ENVG- B has a near infrared (NIR) emitting light source that provides illumination for close-up viewing. The ENVG-B mounts on current Soldier equipment, including the Advanced Combat Helmet (ACH), the Enhanced Combat Helmet (ECH) and Integrated Head Protection System (IHPS). The ENVG-B has a multi-point wireless interface to the FWS-I and Nett Warrior in order to support augmented reality requirements. The ENVG-B wirelessly operates with the FWS-I to provide Rapid Target Acquisition (RTA) capability. RTA is the capability to view the boresighted/zeroed weapon sight reticle in the ENVG- B display, enabling the Soldier to accurately engage targets without having to bring the weapon to eye level and without the use of active lasers, all while remaining in defilade. ***FY 2021 Plans:*** Funding will allow for continuing Phase III LRIP with Production Qualification Testing, Reliability Growth Test, and First Article Test. ***FY 2022 Plans:*** Complete LRIP and accomplish Full Materiel Release and First Unit Equipped. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 increase due to qualification testing to complete LRIP and accomplish Full Materiel Release and First Unit Equipped.			
Title: Night Vison Goggle - Next (NVG-N) ***Description:*** NVG-N provides the capability to engage threat personnel at night or in low light conditions with greater clarity, depth perception, and increased recognition range for engagements. NVG-N systems will replace Soldiers? legacy monocular AN/PVS-14s and bi-ocular AN/PVS-7s increasing the Soldiers? situational awareness, mobility, speed, and effectiveness to support an increased operational tempo. ***FY 2022 Plans:*** Initiate the development of the NVG-N product, supporting the Night Vision Goggle Modernization Strategy. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase reflects initial development funding for NVG-N.	-	-	19.273
Title: Small Tactical Optical Rifle Mounted (STORM) ***Description:*** The STORM Micro-Laser Range Finder (MLRF) is a weapon-mounted multi-function laser system. It provides an eye safe laser range finder, digital compass, Infrared (IR) and visible aiming lights, and an IR illuminator for far target location with continuous range, accuracy, weight and power performance enhanced capabilities. Funding supports qualifying smaller,	2.931	0.415	1.029

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
lighter, and a less expensive STORM variant for Soldiers. Funding also supports integrating ballistics calculator and in-line display capabilities into the STORM as well as a power/data rail interface to support the sharing of laser range finder (LRF) data to other enablers on the weapon. ***FY 2021 Plans:*** Fund the integration of technology to support wireless transmission of STORM data to other systems. Continue the integration of a power/data rail interface to support the sharing of LRF data to other enablers on the weapon. ***FY 2022 Plans:*** Funding will continue the integration of the STORM into the Adaptive Squad Architecture to support wireless transmission of STORM data to other systems. Continue the integration and qualification efforts of a power/data rail interface to support the sharing of LRF data to other enablers on the weapon. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 increase due to the continued integration efforts for the Adaptive Squad Architecture wireless technology and the qualification of these technologies.			
Title: Laser Target Locator Module (LTLM) ***Description:*** LTLM is a Lightweight, Handheld Laser Target Locator with a direct view optic, un-cooled thermal camera, eye-safe laser range finder, digital magnetic compass, and an internal SAASM GPS receiver, which provides the dismounted observer or Scout a fully digital, handheld system to accurately determine target location and the ability to call for fire during all weather and light conditions. ***FY 2021 Plans:*** Initiate integration and evaluation of technology to support sharing of LTLM data to other systems to support inclusion of LTLM with the Adaptive Squad Architecture. ***FY 2022 Plans:*** FY22 funding supports the integration and qualification of the Congressionally mandated M-Code GPS into the LTLM system. Continue the integration and evaluation of technology to support sharing of LTLM data to other systems to support inclusion of LTLM with the Adaptive Squad Architecture. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 funding decrease reflects shift to the M-Code GPS integration which is only incrementally funded in FY 2022.	-	3.357	2.000
Title: Squad Architechtural Integration	2.941	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: The Soldier and Squad Integration effort strives to eliminate redundancies, and identify opportunities for greater capabilities by leveraging features of companion systems.			
Accomplishments/Planned Programs Subtotals	31.118	12.318	32.747

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
• VT7: *Soldier Maneuver Sensors - Adv Dev*	5.780	7.289	3.777	-	3.777	-	-	-	-	-	-
• K22002: *FWS-INDIVIDUAL*	81.541	83.820	147.271	-	147.271	-	-	-	-	-	-
• K35110: *Small Tactical Optical Rifle Mounted MLRF*	22.623	7.715	21.103	-	21.103	-	-	-	-	-	-
• B53800: *Laser Target Locator Systems*	30.382	14.347	20.571	-	20.571	-	-	-	-	-	-
• K22003: *FWS-CREW SERVED*	-	-	25.673	-	25.673	-	-	-	-	-	-
• K22004: *FWS-SNIPER*	-	2.569	11.201	-	11.201	-	-	-	-	-	-
• K36401: *Night Vision AN/PVS-14 Mods*	4.188	-	-	-	-	-	-	-	-	-	-
• 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
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

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 MGMT	MIPR	Various : Various	21.612	1.522	Mar 2020	0.875	Sep 2021	0.804	Nov 2021	-		0.804	Continuing	Continuing	-
		Subtotal	21.612	1.522		0.875		0.804		-		0.804	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
Family of Weapon Sights-Individual (FWS-I)	C/FFP	TBD : TBD	-	-		-		5.061	Nov 2021	-		5.061	Continuing	Continuing	-
Family of Weapon Sights-Crew Served (FWS-CS)	C/FFP	DRS RSTA, Inc : Dallas, TX/Nashua, NH	47.783	5.750	Jan 2020	0.550	Apr 2021	-		-		-	0.000	54.083	-
Family of Weapon Sights-Sniper (FWS-S)	C/FFP	Knights Armament Titusville; N2 Imaging Irvine : FL; CA	13.622	11.614	Jun 2020	-		-		-		-	0.000	25.236	-
Enhanced Night Vision Goggle - Binocular (ENVG-B)	C/FFP	L3Harris Corporation: : Londonderry, NH	14.127	1.690	Dec 2020	0.612	Mar 2021	1.442	Mar 2022	-		1.442	Continuing	Continuing	-
Enhanced Night Vision Goggle - Binocular (ENVG-B)	C/FFP	Elbit Systems of America : Roanoke, VA	10.277	1.690	Dec 2020	0.612	Mar 2021	1.442	Mar 2022	-		1.442	Continuing	Continuing	-
Night Vision Goggles - Next	C/TBD	TBD : TBD	-	-		-		16.718	Jan 2022	-		16.718	Continuing	Continuing	-
STORM II - Wireless Integration & SWAP C (L3)	C/CPFF	L3H : Londonderry, NH	-	1.843	Sep 2020	0.166	Mar 2021	0.587	Jan 2022	-		0.587	Continuing	Continuing	-
Laser Target Location Module (Optics 1)	C/CPFF	Optics 1 : Bedford, NH	1.986	-		2.365	Feb 2021	1.244	Jan 2022	-		1.244	Continuing	Continuing	-
Laser Target Location Module - Intra Soldier Wireless (ISW)	C/FFP	Various : Various	-	-		0.769	Apr 2021	-		-		-	0.000	0.769	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604710A / *Night Vision Systems - Eng Dev*	Project (Number/Name) L67 / *Soldier Night Vision Devices*	

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
SQUAD Architechtural Integration	SS/ Various	Various : Various	-	2.941	Jul 2020	-		-		-		-	0.000	2.941	-
		Subtotal	87.795	25.528		5.074		26.494		-		26.494	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	27.808	1.678	Jan 2020	0.815	Dec 2020	0.810	Dec 2021	-		0.810	Continuing	Continuing	-
		Subtotal	27.808	1.678		0.815		0.810		-		0.810	Continuing	Continuing	N/A

Test and Evaluation ($ 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
Government Test Support Activity	MIPR	Army Test and Evaluation Command : Various	59.777	2.390	Mar 2020	5.554	Jun 2021	4.639	Mar 2022	-		4.639	Continuing	Continuing	-
		Subtotal	59.777	2.390		5.554		4.639		-		4.639	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	196.992	31.118		12.318		32.747		-		32.747	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

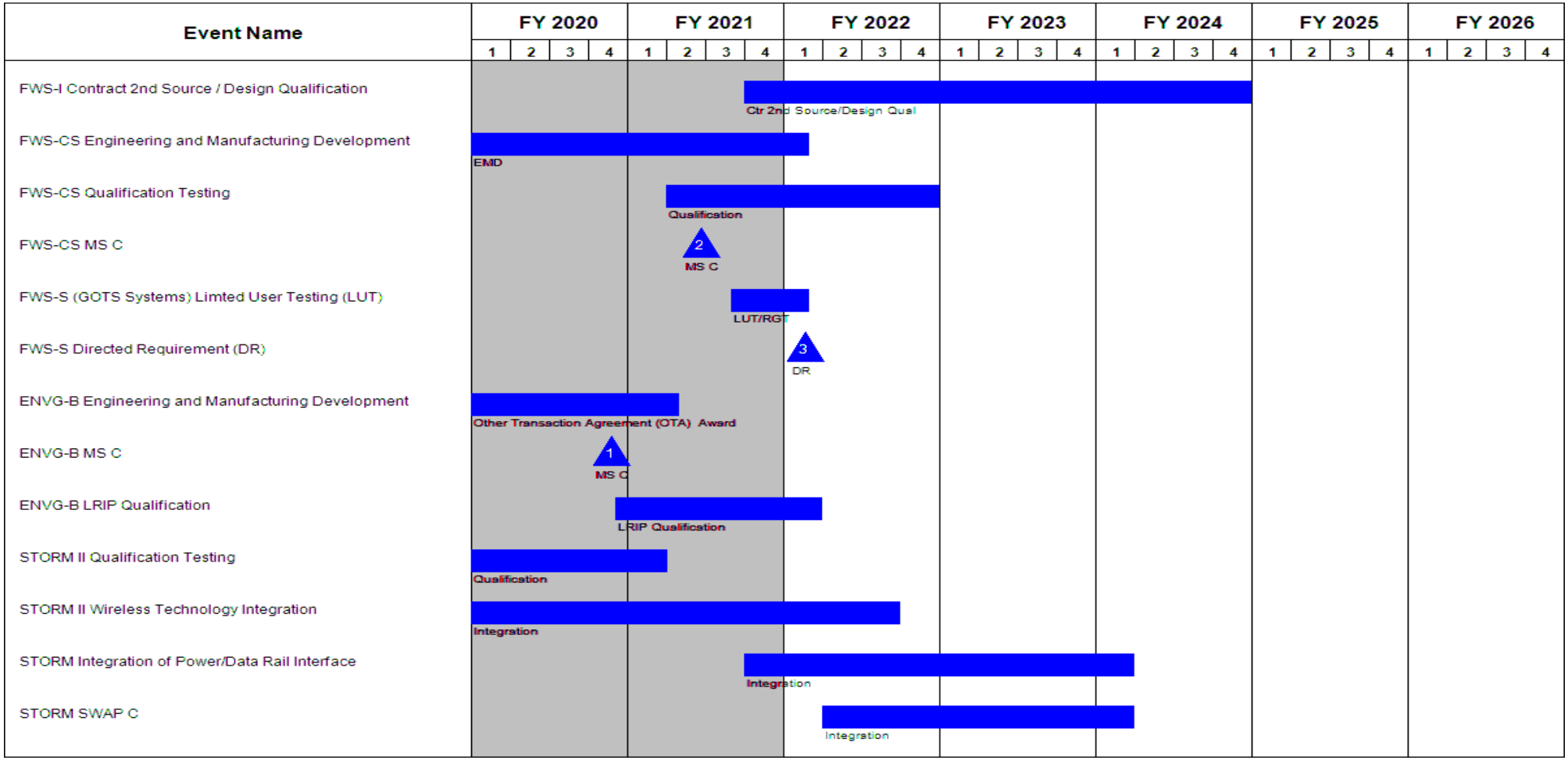

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

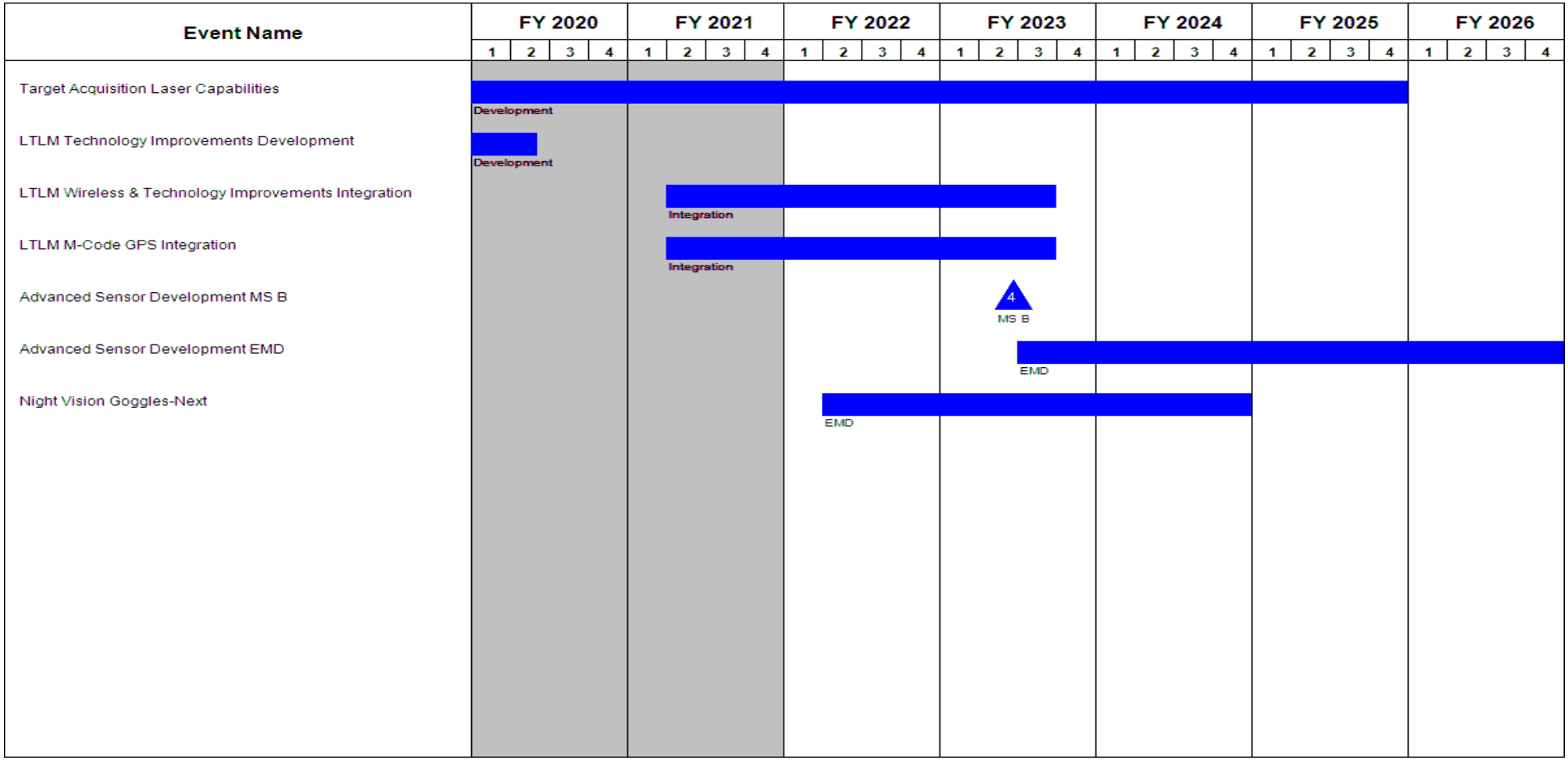

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L67 / *Soldier Night Vision Devices*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FWS-I Contract 2nd Source / Design Qualification	4	2021	4	2024
FWS-CS Engineering and Manufacturing Development	3	2016	1	2022
FWS-CS Qualification Testing	2	2021	4	2022
FWS-CS MS C	2	2021	2	2021
FWS-S (GOTS Systems) Limted User Testing (LUT)	3	2021	1	2022
FWS-S Directed Requirement (DR)	1	2022	1	2022
ENVG-B Engineering and Manufacturing Development	3	2019	2	2021
ENVG-B MS C	4	2020	4	2020
ENVG-B LRIP Qualification	4	2020	1	2022
STORM II Qualification Testing	2	2019	1	2021
STORM II Wireless Technology Integration	2	2019	3	2022
STORM Integration of Power/Data Rail Interface	4	2021	1	2024
STORM SWAP C	2	2022	1	2024
Target Acquisition Laser Capabilities	2	2019	4	2025
LTLM Technology Improvements Development	2	2019	2	2020
LTLM Wireless & Technology Improvements Integration	2	2021	3	2023
LTLM M-Code GPS Integration	2	2021	3	2023
Advanced Sensor Development MS B	2	2023	2	2023
Advanced Sensor Development EMD	3	2023	4	2026
Night Vision Goggles-Next	2	2022	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 / *Night Vision Dev Ed*	

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
L70: *Night Vision Dev Ed*	-	37.420	29.058	19.893	-	19.893	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

FY 2022 Base funding in the amount of $19.893 million supports the 3GEN FLIR B-Kit program activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 3GEN FLIR B-Kit EMD	37.420	29.058	19.893
Description: 3GEN FLIR EMD requirements and contract awards.			
FY 2021 Plans: FY 2021 Base funding supports 3GEN FLIR B-Kit delivery of hardware to the Abrams and Next Generation Combat Vehicle (NGCV) / Optionally Manned Fighting Vehicle (OMFV) platforms for integration and developmental testing, enables integration of automation and artificial intelligence/machine learning, execution of critical component warm lines in preparation for Low Rate Initial Production (LRIP), and promote competition for full rate production.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 / *Night Vision Dev Ed*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2022 Base funding supports 3GEN FLIR B-Kit hardware integration with the Abrams M1A2 SEPv4 Modernization (Lethality ECP) effort for developmental testing, execution of critical component warm lines, continues integration of automation and artificial intelligence/machine learning, and supports Detect, Recognize, and Identify (DRI) operational testing in support of the 3GEN FLIR B-Kit Milestone C (MS C) in FY22, and promote competition for full rate production. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease is due the completion of 3GEN FLIR B-Kit delivery of hardware in FY21 to Abrams and NGCV/OMFV.			
Accomplishments/Planned Programs Subtotals	37.420	29.058	19.893

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
• 330: *Abrams Tank Improve Prog*	114.723	61.039	50.331	-	50.331	-	-	-	-	-	-
• CF6: *Next Generation Combat Vehicle (OMFV)*	197.304	171.890	225.106	-	225.106	-	-	-	-	-	-
• KA4511: *Improved Forward Looking Infrared (IFLIR) B-Kit*	-	-	11.929	-	11.929	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 / *Night Vision Dev Ed*

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
Project Management	MIPR	PM TS : Ft. Belvoir, VA	16.867	-		0.697	Jan 2021	0.518	Jan 2022	-		0.518	Continuing	Continuing	-
FY 2019 NDAA SEC 825 MDAP Cost Overruns	Various	HQDA : HQDA	0.051	-		-		-		-		-	0.000	0.051	-
		Subtotal	16.918	-		0.697		0.518		-		0.518	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
FY 2012-FY 2013: Develop, Fab, and Qual of a common Ground Platform Engine with Block II EOCCM	C/Various	Various : Various	0.049	-		-		-		-		-	0.000	0.049	-
3GEN FLIR B-Kit Engineering/Document Prep	C/Various	Various : Various	21.685	-		-		-		-		-	0.000	21.685	-
3GEN FLIR B-Kit EMD	C/CPIF	Various : Various	151.015	35.174	Nov 2019	26.433	Nov 2020	15.491	Nov 2021	-		15.491	Continuing	Continuing	-
3GEN LRAS3: Tech Trade Studies	C/TBD	Various : Various	1.611	-		-		-		-		-	0.000	1.611	-
3GEN LRAS3: ECP Integration	C/TBD	Various : Various	0.313	-		-		-		-		-	0.000	0.313	-
PSS P3I: CE COE	C/FP	Various : Various	19.162	-		-		-		-		-	0.000	19.162	-
		Subtotal	193.835	35.174		26.433		15.491		-		15.491	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
3GEN FLIR B-Kit Support	C/TBD	Various : Various	38.715	2.246	Feb 2020	1.928	Feb 2021	0.822	Feb 2022	-		0.822	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 / *Night Vision Dev Ed*

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
3GEN LRAS3 - Spec development and acquisition documentation	C/TBD	Various : Various	1.145	-		-		-		-		-	0.000	1.145	-
COE Support	C/CPFF	Various : Various	1.394	-		-		-		-		-	0.000	1.394	-
		Subtotal	41.254	2.246		1.928		0.822		-		0.822	Continuing	Continuing	N/A

Test and Evaluation ($ 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
Other Test Support	MIPR	Various : Various	15.850	-		-		3.062	Jan 2022	-		3.062	0.000	18.912	15.850
		Subtotal	15.850	-		-		3.062		-		3.062	0.000	18.912	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	267.857	37.420		29.058		19.893		-		19.893	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 / *Night Vision Dev Ed*

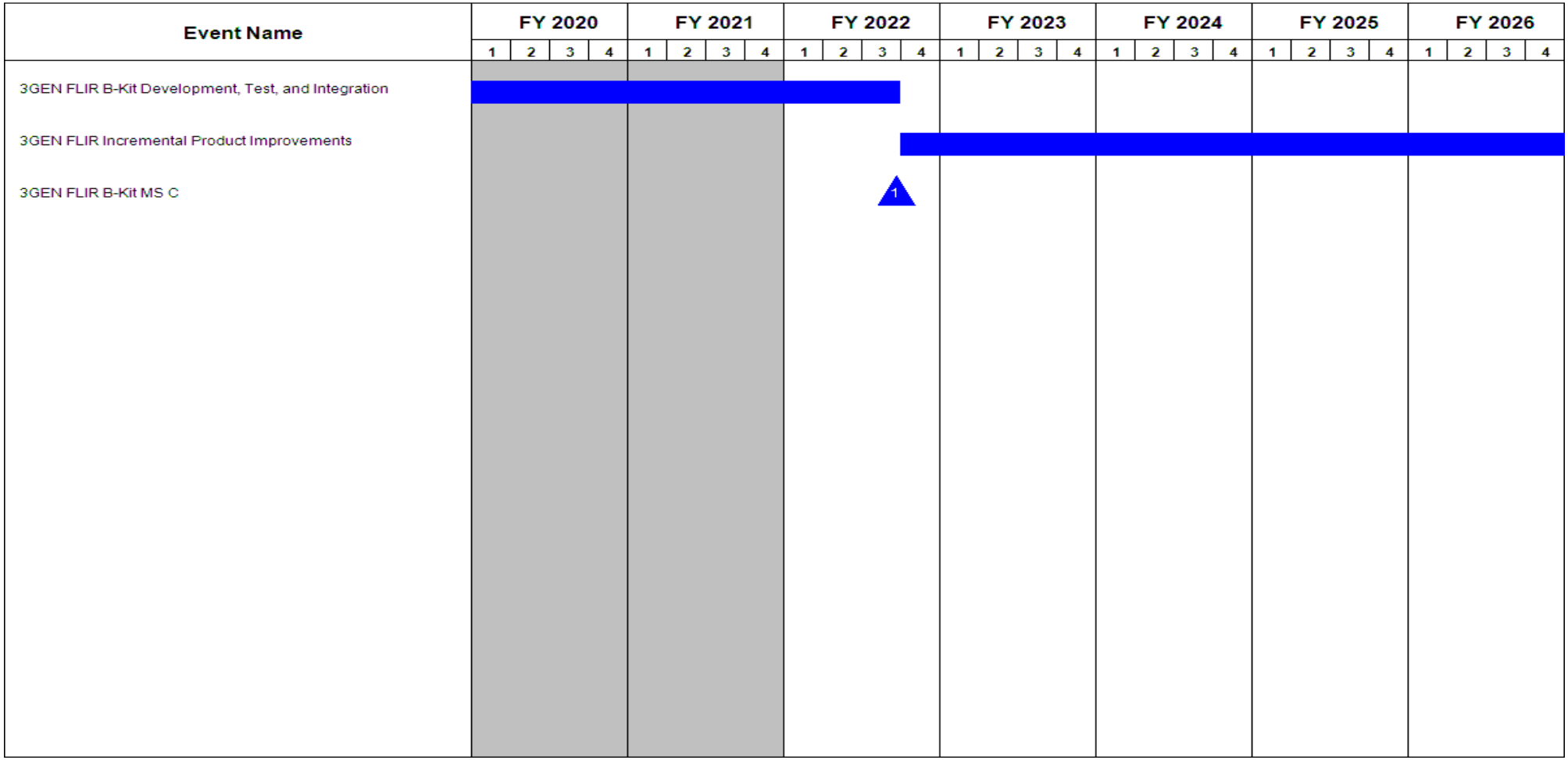

Exhibit R-4A, **RDT&E Schedule Details:** PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L70 / *Night Vision Dev Ed*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
3GEN FLIR Materiel Development Decision (MDD)	1	2015	1	2015
3GEN FLIR Development Request For Proposal Release Review (DRFPRR)	3	2015	3	2015
3GEN FLIR B-Kit MS B	2	2016	2	2016
3GEN FLIR B-Kit Development, Test, and Integration	2	2016	3	2022
3GEN FLIR Incremental Product Improvements	4	2022	4	2027
3GEN FLIR B-Kit MS C	3	2022	3	2022
3GEN LRAS3 ECP to Integrate 3GEN FLIR B-Kit: Spec Development & Documentation	1	2018	4	2019
Common Operating Environment, Development	2	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*	

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
L79: *Joint Effects Targeting Systems (JETS)*	-	6.146	5.363	5.116	-	5.116	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Joint Effects Targeting System (JETS) Low-Rate Initial Production (LRIP) Qualification Testing ***Description:*** This projects supports the LRIP Qualification Testing. ***FY 2021 Plans:*** Conduct additional reliability testing with Soldiers. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decreased funding supports an increase to Precision Targeting and Target Acquisition Development.	0.161	0.317	-
Title: Precision Azimuth and Vertical Angle Module (PAVAM) Development ***Description:*** Focuses on developments to improve Size, Weight, Power and Cost (SWAP-C) for inertial navigation PAVAM solutions which provide a 24/7 precision targeting capability. Develop improvements to celestial navigation and PAVAM solutions to improve availability of precision measurements over a wider range of environments. ***FY 2021 Plans:*** Continue development of reduced SWAP-C of PAVAM architecture. ***FY 2022 Plans:*** Continue development of reduced SWAP-C for PAVAM architecture. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	-	1.096	0.158

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2022 decreased funding supports an increase to Precision Targeting and Target Acquisition Development.			
Title: Joint Effects Targeting System (JETS) Threat Mitigation Development and Integration ***Description:*** Focuses on developing and integrating technologies to counter battlefield threats to the system and the Soldier. This includes technologies and techniques to allow JETS to operate in GPS contested environments, and improved targeting sensor technologies, to include passive targeting, that will reduce the Soldier?s signature on the battlefield. ***FY 2022 Plans:*** Continue integration of technologies and techniques into JETS to allow it to operate in GPS contested environments. In FY22 program will transition 3D Point Cloud applications for GPS contested operations to existing platforms. These apps will reside on the Nett Warrior End User Device and will provide the hooks necessary for the JETS to accurately determine its self-location in a GPS denied environment. Initiate development of image-based self-location and target location efforts for targeting in GPS contested environments. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 increased funding reflects initiation of additional GPS contested efforts and integration of ongoing efforts.	0.963	-	0.356
Title: Precision Targeting and Target Acquisition Development ***Description:*** This project develops prototype precision targeting systems incorporating improved target acquisition sensors and optics, improved targeting sensors, and updated targeting algorithms while reducing size, weight, and power requirements. Incorporates JETS into the Adaptive Squad Architecture (ASA) and integrates the Intra Soldier Wireless (ISW) capability. ***FY 2021 Plans:*** Conduct development and component integration of improved precision targeting prototypes. ***FY 2022 Plans:*** Continue development and component integration of improved precision targeting prototypes. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 increase reflects the higher prioritization of integrating improved Precision Targeting and Target Acquisition technologies into the JETS system.	5.022	3.950	4.602
Accomplishments/Planned Programs Subtotals	6.146	5.363	5.116

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*

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
• VT8: *SOLDIER PRECISION TARGETING DEVICES - ADV DEV*	1.422	2.665	2.524	-	2.524	-	-	-	-	-	-
• K32101: *JOINT EFFECTS TARGETING SYSTEM (JETS)*	25.330	54.206	62.082	-	62.082	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

This project continues 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 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*

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 Support	MIPR	PM-SMPT : Ft Belvoir, VA 22060	4.335	0.398	Dec 2019	0.532	Dec 2020	0.418	Dec 2021	-		0.418	Continuing	Continuing	Continuing
		Subtotal	4.335	0.398		0.532		0.418		-		0.418	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
PAVAM 2 Development	C/FFP	Various : Various	12.781	-		0.800	Apr 2021	0.117	Jan 2022	-		0.117	Continuing	Continuing	Continuing
Threat Mitigation Development	C/FFP	Various : Various	4.087	0.750	Apr 2020	-		0.264	Feb 2022	-		0.264	Continuing	Continuing	Continuing
Precision Targeting & Target Acquisition Development	C/FFP	Elbit : Merrimack, NH	2.368	3.910	Dec 2019	2.881	Nov 2020	3.417	Jan 2022	-		3.417	Continuing	Continuing	Continuing
		Subtotal	19.236	4.660		3.681		3.798		-		3.798	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	Night Vision Electronics Sensors Directorate : Ft. Belvoir, VA	12.897	0.357	Jan 2020	0.278	Dec 2020	0.225	Dec 2021	-		0.225	Continuing	Continuing	-
Science and Engineering Support	SS/CPFF	Johns Hopkins University : Laurel, MD	7.327	0.606	Sep 2020	0.555	Jan 2021	0.550	Jan 2022	-		0.550	Continuing	Continuing	-
		Subtotal	20.224	0.963		0.833		0.775		-		0.775	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 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
Testing	MIPR	Various : Various	5.563	0.125	Aug 2020	0.317	Feb 2021	0.125	Jan 2022	-		0.125	Continuing	Continuing	-
		Subtotal	5.563	0.125		0.317		0.125		-		0.125	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	49.358	6.146		5.363		5.116		-		5.116	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*

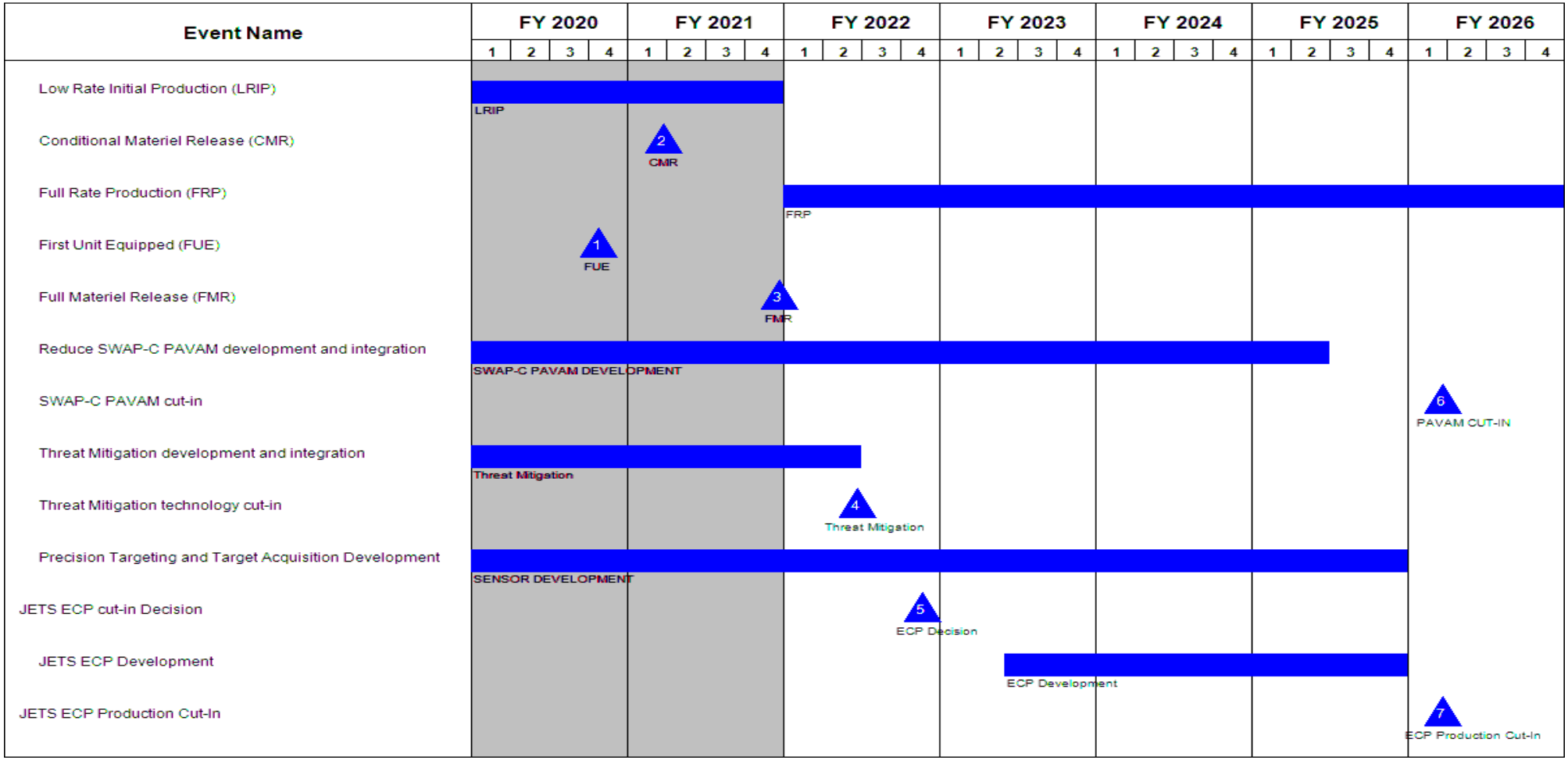

Exhibit R-4A, **RDT&E Schedule Details:** PB 2022 Army		**Date:** May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604710A / *Night Vision Systems - Eng Dev*	**Project (Number/Name)** L79 / *Joint Effects Targeting Systems (JETS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Low Rate Initial Production (LRIP)	1	2017	4	2021
Conditional Materiel Release (CMR)	1	2021	1	2021
Full Rate Production (FRP)	1	2022	4	2026
First Unit Equipped (FUE)	4	2020	4	2020
Full Materiel Release (FMR)	4	2021	4	2021
Reduce SWAP-C PAVAM development and integration	3	2016	2	2025
SWAP-C PAVAM cut-in	1	2026	1	2026
Threat Mitigation development and integration	2	2017	2	2022
Threat Mitigation technology cut-in	2	2022	2	2022
Precision Targeting and Target Acquisition Development	2	2019	4	2025
JETS ECP cut-in Decision	4	2022	4	2022
JETS ECP Development	2	2023	4	2025
JETS ECP Production Cut-In	1	2026	1	2026