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 0604715A / *Non-System Training Devices - 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	-	29.785	27.013	26.540	-	26.540	-	-	-	-	-	-
241: *Nstd Combined Arms*	-	29.785	27.013	26.540	-	26.540	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Program Element funds development of Non-System Training Devices to support force-on-force training at the Combat Training Centers (CTC), general military training, and training on more than one item/system, as compared with system devices which are developed in support of a specific item/weapon system. Army training devices and training simulations contribute to the modernization of the forces by enabling readiness and strengthening combat effectiveness through realistic training solutions for the Warfighter. Training devices maximize the transfer of knowledge, skills, and experience from the training situation to a combat situation. Force-on-force training at the National Training Center (NTC), Ft. Irwin, CA; Joint Readiness Training Center (JRTC), Ft. Polk, LA, and Joint Multinational Readiness Center (JMRC), formerly the Combat Maneuver Training Center (CMTC), Hohenfels, Germany; and battle staff training in Battle Command Training Program (BCTP) provide increased combat readiness through realistic collective training in low, mid, and high intensity scenarios. Project 241, Non-System Training Devices-Combined Arms, develops simulation training devices for Army-wide use, including the CTCs.

FY 2022 Project 241 funds significant development efforts in support of U.S. Army Training and Readiness on the Combat Training Center Instrumentation Systems (CTC-IS), Instrumentable-Multiple Integrated Laser Engagement System (I-MILES), Home Station Instrumentation Training System (HITS), Common Training Instrumentation Architecture (CTIA), OPFOR Integrated Air Defense System (IADS), Digital Range Training System (DRTS), the Future Army System of Integrated Targets (FASIT), Medical Simulation Training Center (MSTC), Unmanned Aerial Systems (UAS) Swarm new start, and the Live, Virtual, Constructive Integrating Architecture (LVC-IA).

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	30.912	28.036	26.753	-	26.753
Current President's Budget	29.785	27.013	26.540	-	26.540
Total Adjustments	-1.127	-1.023	-0.213	-	-0.213
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.001	-			
• SBIR/STTR Transfer	-1.128	-1.023			
• Adjustments to Budget Years	-	-	-0.213	-	-0.213

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Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 241: *Nstd Combined Arms*		
Congressional Add: *Radio Frequency Emitters*	3.500	-
Congressional Add Subtotals for Project: 241	3.500	-
Congressional Add Totals for all Projects	3.500	-

Change Summary Explanation

No explanation needed.

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604715A / *Non-System Training Devices - Eng Dev*				Project (Number/Name) 241 / *Nstd Combined Arms*			
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**
241: *Nstd Combined Arms*	-	29.785	27.013	26.540	-	26.540	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Common Training Instrumentation Architecture (CTIA) program is the foundation architecture of the Live Training Transformation Family of Training Systems (LT2-FTS). The program contains critical core product-line architecture which provides commonality across training instrumentation systems and interoperability across Live, Virtual, Constructive Integrated Training Environment (LVC-ITE) and joint training systems. CTIA includes Army owned software components, architecture services, standards, protocols and governance used by domain-specific Live Training Transformation (LT2) and Live Training Systems (LTS) to include instrumented Force-On-Force (FOF) and Force-On-Target (FOT) training requirements. The CTIA also provides Post Deployment Software Support (PDSS) and technology refresh for the LT2 family of LTS supporting over 22 live instrumented training products which are fielded at over 200 CONUS and OCONUS sites across the Army.

Combat Training Center Instrumentation System (CTC-IS) funds the continued development of the existing Instrumentation Systems (IS) at the National Training Center (NTC), Joint Readiness Training Center (JRTC) and Joint Multinational Readiness Center (JMRC). CTC-IS funds the continued development of the Range Communication System at the NTC and JRTC, to provide high-fidelity live, virtual, and constructive brigade training rotations which prepare Brigade Combat Teams (BCTs), Joint partners, and supporting units to deploy in support of the Army Sustainable Readiness Model (SRM). The CTCs primary goal is to develop agile and adaptive leaders at the tactical, operational and strategic levels while providing BCTs the core training necessary to conduct decisive action in a dynamic operating environment.

The Instrumentable-Multiple Integrated Laser Engagement System (I-MILES) program provides realistic, real-time casualty effects for force-on-force tactical engagement training scenarios. Its ability to integrate into training instrumentation systems provides for high fidelity combined arms combat exercises supporting the Chief of the Staff of the Army's priority of "Readiness" and closely aligns with the Modernization priority of Soldier Lethality. I-MILES is required for use at Home Stations, the Combat Training Centers (CTCs) and in theater of operations to meet force-on-force training requirements. I-MILES program funding provides for the Development and Integration of new vehicle and dismount weapon systems meeting the Common Operating Environment (COE) requirements, as well as embedded Tactical Engagement Simulation (TES) development. This includes development efforts of the Live Training Engagement Composition (LTEC), increasing simulation by updating the Probability of Kill (Pk) tables for increased training realism and improved integration on new weapon platforms (i.e. Joint Light Tactical Vehicle (JLTV), Armored Multi-Purpose Vehicle (AMPV), Next Generation Combat vehicle, and Stryker Engineering Change Proposal (ECP) with 30mm Gun).

The Home Station Instrumentation Training System (HITS) currently provides a high-fidelity deployable instrumented training capability to support platoon thru battalion ground based Soldiers and vehicles in Force-on-Force Training. HITS tracks location of soldiers and vehicles and simulates weapons' effects and engagements, allowing units to "Train as they Fight" against live opponents. HITS provides accurate feedback to training units. HITS consists of light deployable components that can be rapidly assembled/disassembled and transported to support deployed training. HITS is a member of the Live Training Transformation (LT2) product line of training systems implementing hardware and software reuse with other Instrumentation Systems (IS). HITS provides the only Live training component for the large scale Live-

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Virtual-Constructive (LVC) military training exercises. HITS begins US Army aviation vehicle integration with Home Station instrumentation to cover comprehensive training engagements between ground and air forces.

The Medical Simulation Training Center (MSTC) provides realistic medical training to both medical and non-medical Soldiers in the Active, Reserve, and National Guard. MSTCs provide hands-on instruction on the latest battlefield trauma and critical care techniques based on Army Medical Center of Excellence (MEDCoE) approved performance oriented Program of Instruction (POI). Medical treatment validation exercises simulate the high stress of performing medical interventions in combat. MSTC supports Unit Medical Readiness by validating Combat Medic (68W) Emergency Medical Technician (EMT) biennial recertification requirements and provides Combat Lifesaver (CLS) training to non-medical Soldiers. The Tactical Combat Casualty Care Exportable (TC3X) Soldier System provides an exportable capability to train Soldiers on medical Warrior skills at the individual, leader, and collective levels. The TC3X system will consist of Training Aides, Devices, Simulators, and/or Simulations (TADSS); utilized by Soldier medics to provide realistic, hands-on training in a "train the trainer" fashion to all Soldiers at home stations, initial training centers, and combat training centers.

The Basic Electronics Maintenance Trainer (BEMT) provides the essential modernized electronic system maintenance training capability for the Army, Army National Guard, and the Army Reserve to achieve Military Occupational Specialty-Qualification (MOS-Q) for 40 Military Occupational Specialties (MOS) at 24 Active, National Guard, and Army Reserve camps, posts, and stations. Soldiers utilizing the BEMT system receive highly realistic training using scenarios which require performing basic electronic tasks in a virtual environment including tests, diagnosis, and repair while saving institutions significant expenses over live training alternatives. The BEMT consists of an Instructor Operator Station (IOS), Student Training Station(s) (STS), associated test equipment, COTS computer, electronics console(s), supporting experiment cards, soldering station, and content server as applicable.

The Live, Virtual, Constructive Integrating Architecture (LVC-IA) provides a net-centric linkage that collects, retrieves and exchanges data among LVC Training Aids, Devices, Simulations, and Simulators (TADSS) to include: Aviation Combined Arms Tactical Trainer (AVCATT), Close Combat Tactical Trainer (CCTT), Games For Training (GFT), Home Station Instrumentation Training System (HITS), Joint Land Component Constructive Training Capability (JLCCTC) and Synthetic Environment Core (SE Core) and Mission Command Systems. The LVC-IA defines "how" information is exchanged among the different LVC domains and the Mission Command Systems. The LVC-IA provides enterprise level tools for exercise control, after action review, and system information assurance. It develops hardware and software to interface the different Live, Virtual, Constructive and Gaming communication protocols and to provide a correlated common operating picture for the training audience on their organic Mission Command equipment. The integration of the LVC TADSS with the Mission Command equipment will enable larger and more robust training events, to better prepare U.S. Soldiers for their missions at an overall reduced cost. The end-state goal is to enable an LVC Integrated Training Environment that can replicate Operational Environments in a cost effective manner to provide a high level of value-added training and mission rehearsal opportunities to Army Commanders and their Soldiers. In FY 2019, the LVC-IA program commence design and developmental activities for Version 4, which allowed for Web-based optimization; inclusion of new simulations to the architecture; and concurrency with core system TADSS and Army Mission Command Information Systems through FY 2022. FY 2022 request will complete Version 4 developmental and integration activities (Web-based optimization and Synthetic Training Environment (STE) compatibility), and continues concurrency with Mission Command Information Systems.

The Army identified an operational gap in the training strategy for the OPFOR Integrated Air Defense System (IADS). It is a collection of enemy weapons systems that engages Army aviation assets. Training Aircraft Survivability Equipment (ASE) Simulation Suite (TASS) is a live training system consisting of aircraft components

and ground emitters that replicates current and emerging enemy Air Defense systems. Its fidelity supports individual pilot training as well as the collective training requirements of the Brigade Combat Team to fully plan, prepare, execute and react against an enemy air defense weapons at the Combat Training Centers (CTC).

FASIT provides Live Fire training systems and software capable of supporting all Army automated ranges and it's Installations around the world. The FASIT training systems include: A single, universal target control software for all automated ranges (ground and aviation) identified in TC 25-8, providing users a controller with a common look and feel; downrange stationary and moving infantry and armor Presentation Devices (PDs) that interact with the control software to present targets and provide scoring feedback; battlefield/weapons effects devices that simulate combat situations, visuals, and sounds; and targets that provide visual, I2 and thermal representations of friendly/threat engagements. The FASIT systems enable trainers to develop scenarios to simulate wartime mission tasks in a stressful battlefield environment.

The Digital Range Training System (DRTS) provides modern digital technology ranges capable of training, evaluating and stressing today's Soldiers and their equipment. DRTS systems score various weapons and records data and video for utilization in an After Action Review (AAR). DRTS supports qualification gunnery tables for Armor (Abrams), Infantry (Bradley & Stryker mounted & dismounted), and Aviation platforms. The five standard training ranges identified utilize all available combat systems capabilities and digitally integrate them to manage all forces undergoing individual and collective live-fire training and qualification: Digital Multi-Purpose Range Complex (DMPRC) supports all gunnery tables and Combined Arms Live fire Exercise (CALFEX) for Abrams, Bradley, and limited Aviation; Digital Multi-Purpose Training Range (DMPTR) supports crew and section qualification for Armor and Infantry; Battle Area Complex (BAX) supports Stryker gunnery tables plus infantry centric Platoon / Company CALFEX; Digital Air Ground Integration Range (DAGIR) supports all gunnery tables and CALFEX for Abrams, Bradley, and Aviation platforms (including diving fire); and Aerial Gunnery Range (AGR) supports training/test manned/unmanned aviation platforms and convoy live fire crew/platoon/company.

OPFOR Surrogate Wheeled Vehicles (OSWV) provides a collection of wheeled vehicles, used as training aids to portray threat vehicles including tactical vehicles, technical vehicles, and Civilian on the Battlefield vehicles (COB-V). The program supports the CTC OPFOR/COE Pillar capability through technical vehicles, unique VISMODs, and COB-Vs. This capability provides for an accurate replication of OPFOR and COB-Vs environment that rotational units must train against.

Unmanned Aerial Systems (UAS) Swarm provides integrated, multi-domain threat representative UAS platforms through custom UAS components and payloads that challenge training communities' execution of UAS Tactics, Techniques and Procedures (TTPs), use of current and evolving UAS technologies (i.e., Drone buster), and gives feedback on their vulnerabilities to UAS-enabled Intelligence, Surveillance, and Reconnaissance, Cyber, Electronic Warfare, Dynamic Targeting and Swarm operations.

FY 2022 Project 241 funds significant development efforts in support of U.S. Army Training and Readiness on the Combat Training Center Instrumentation Systems (CTC-IS), Instrumentable-Multiple Integrated Laser Engagement System (I-MILES), Home Station Instrumentation Training System (HITS), Common Training Instrumentation Architecture (CTIA), OPFOR Integrated Air Defense System (IADS), Digital Range Training System (DRTS), the Future Army System of Integrated Targets (FASIT), Medical Simulation Training Center (MSTC), Unmanned Aerial Systems (UAS) Swarm new start, and the Live, Virtual, Constructive Integrating Architecture (LVC-IA).

FY 2020 funding for Suicide Prevention was realigned to PE 0605013A project FL9.

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FY 2020 funding for Soldier/Squad Virtual Trainer Program (S/SVT) was realigned to PE 0604121A, Project SV1.

On 21 April 2019, the Future Army System of Integrated Targets (FASIT) Capability Production Document was approved. The FASIT program is not a new start program, but is the continuation of requirements and formal update to the New Generation Army Targetry System (NGATS) Operational Requirements Document (ORD) that was approved 11 Jun 96. FASIT will subsume the following programs: Combat Training Center Live Fire Modernization (CTC Live Fire Mod), Target Modernization, and Army Targetry Systems (ATS) into one ACAT II program of record.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Common Training Instrumentation Architecture (CTIA) program. ***Description:*** Continue EMD phase contract activities for the CTIA program to provide common architecture capabilities. ***FY 2021 Plans:*** FY 2021 Base RDTE dollars in the amount of $2.417 million will fund the continued development of CTIA to provide the common architecture capabilities that are essential for development, fielding, technology and capability insertion for 22 live training systems at 200+ training locations worldwide, to include the Combat Training Centers-Instrumentation System utilized at the National Training Center, the Joint Readiness Training Center, and at the Joint Multinational Readiness Center; the Home Station Instrumentation System; the Digital Ranges Training System, and the Live, Virtual, Constructive-Integrated Training Environment interoperability initiatives. ***FY 2022 Plans:*** FY 2022 Base RDTE dollars in the amount of $2.550 million will fund the continued development of CTIA to provide the common architecture capabilities that are essential for development, fielding, technology and capability insertion for 22 live training systems at 200+ training locations worldwide, to include the Combat Training Centers-Instrumentation System utilized at the National Training Center, the Joint Readiness Training Center, and at the Joint Multinational Readiness Center; the Home Station Instrumentation System; the Digital Ranges Training System, and future modernization efforts including emerging Army and joint architectures. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 increase is due to inflation.	2.420	2.417	2.550
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Combat Training Center Instrumentation System (CTC-IS). ***Description:*** Continue EMD phase contract activities for the CTC-IS. ***FY 2021 Plans:***	4.090	3.386	3.886

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Base RDTE dollars in the amount of $.329 million will fund post deployment software support to integrate sensor, GPS and radar jamming and UAS counter measures into the training at the CTCs. The effort will stimulate and simulate GPS and radar jamming and UAS counter measures in Brigade Combat Team (BCT) Force-on-Force training. The results will be available in the CTC-IS for After Action Review (AAR). FY 2021 Base RDTE dollars in the amount of $.750 million will fund the development of a Digital Tactical Monitoring (DTM) solution for the CTCs. The DTM capability will allow Combat Training Center Observers Controllers Trainers (OCTs) to monitor, collect, and record Rotational Training Unit (RTU) Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) communications and provide performance feedback during Combat Training Center Brigade Combat Team(BCT) FoF/FoT training events, this is valuable feedback in the AAR process increasing BCT readiness. FY 2021 Base RDTE dollars in the amount of $1.813 million will fund the Life Cycle Management (LCM) of Live Training Family of Systems, developing the architecture framework for future Life Cycle Efforts for the Hardware Product Line Framework. FY 2021 Base RDTE dollars in the amount of $.494 million will fund the JOC DESIGN ANALYSIS study to determine the layout of the JRTC-IS systems/subsystem within the new JOC. The study will also look at current and future technologies for implementing the installation of the JRTC-IS systems/subsystems in the new JOC to ensure the architecture remains current with the latest technology improvements and effectiveness and to improve the life cycle footprint. ***FY 2022 Plans:*** FY 2022 Base RDTE dollars in the amount of $1.948 million will fund the initial design of the NTC Western Training Area extension for the NTC Instrumentation System. Tracking, Observer Controller / Trainer (OC/T) Situational Awareness, OC/T Voice. Army Aviation, Voice Tactical Monitoring, Spectrum Monitoring, video and AAR support will be extended into the Western Training area. Network, antenna site, antenna tower, fiber optics and power generation must be designed for this effort. FY 2022 Base RDTE dollars in the amount of $.541 million will fund post deployment software support to implement software to support the next Integrated Player Unit (IPU) being developed. Improvements to increase battery life and reduce data plan usage include decentralized indirect fire, minefields and sleep functions. FY 2022 Base RDTE dollars in the amount of $1.397 million will fund the Life Cycle Management (LCM) of Live Training Family of Systems, continuing the development of the architecture framework for future Life Cycle Efforts for the Hardware Product Line Framework. ***FY 2021 to FY 2022 Increase/Decrease Statement:***			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2022 increase due to starting the initial design of the NTC Western Training Area extension for the NTC Instrumentation System.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Instrumentable-Multiple Integrated Laser Engagement System (I-MILES). ***Description:*** EMD phase contract activities for the I-MILES program. ***FY 2021 Plans:*** FY 2021 Base RDTE dollars in the amount of $2.700 million RDTE funding will analyze, develop, test and implement the Live Training Engagement Composition (LTEC) through Post Deployment Software Support efforts. Funding will ensure that baseline relevancy is maintained. Funding will also ensure that there is development and integration of new functionality to maintain concurrency. ***FY 2022 Plans:*** FY 2022 Base RDTE dollars in the amount of $2.990 million RDTE funding will analyze, develop, test and implement the Live Training Engagement Composition (LTEC) through Post Deployment Software Support efforts. Funding will ensure that baseline relevancy is maintained. Funding will also ensure that there is development and integration of new functionality to maintain concurrency. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 increase is due to the additional requirement for Electronic Proving Ground testing.	2.519	2.700	2.990
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Home Station Instrumentation Training System (HITS) program. ***Description:*** EMD phase contract activities for the HITS program. ***FY 2021 Plans:*** FY 2021 Base RDTE dollars in the amount of $1.810 million will continue HITS US Army aviation vehicle integration with Home Station instrumentation to provide comprehensive training engagements between ground and air forces. Efforts will add aviation specific interfaces, visual indicators, and required messaging for HITS and Live, Virtual and Constructive Integrating Architecture (LVC-IA) interoperability. LVC-IA and HITS encompass simulated combined arms, collective training. This will create a cloud based HITS After Action Review capability so that distributed unit leaders can readily have on demand and point-of-need access. The cloud based access will allow the unit leader to reinforce training of over 1,000 Soldiers after training with HITS. ***FY 2022 Plans:***	3.485	1.810	4.153

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2022 Base RDTE dollars in the amount of $4.153 million will continue efforts for Home-Station Instrumentation Training Systems (HITS) to incorporate a new network that will enable Observer, Controller/Trainer (OC/T) interoperability using a tablet computer. This new network shall be in addition to the HITS network which is a closed loop system. HITS will develop a Voice Tactical Monitoring and Recording capability to interface with new tactical radios being fielded to the Army for After Action Reviews in home station training exercises. In addition, HITS maintains concurrency with the Combat Training Centers by developing software/hardware updates so that HITS has similar training capabilities found at the Combat Training Centers. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in RDTE due to development of improved capability to provide distributed situational awareness to Observer, Controller/Trainer (OC/T) through portable tablet devices. This capability will allow more efficient execution of smaller scale unit exercises as well as improved training feedback. Funding will also provide a new Voice Tactical Monitoring and Recording capability for new tactical radios, improving feedback of battlefield communication.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Medical Simulation Training Center (MSTC). ***Description:*** EMD phase contract activities for the MSTC program to support the Virtual Patient System technologies. The approved MSTC Capability Production Document (CPD), Inc 1, Rev 1, dtd 6 MAR 2019 Capabilities has significant unfulfilled requirements, without which are enabling negative medical trauma training. The MSTC CPD requires and states that ALL GENDERS shall be represented within the medical training simulations and scenarios. The FEMALE GENDER is neither wholly, adequately, nor accurately represented in the MSTC at this time. The CPD also states that realistic medical scenarios are required. Realistic combat trauma training is not represented in the MSTC due to the inaccurate simulation of the Human Physiology and absence of representative battlefield wounds. These requirements align with near-peer competition over-match. ***FY 2021 Plans:*** Instructor Support System (ISS) combat training scenarios will be improved in a Synthetic Training Environment (STE) via Virtual Reality and Reconfigurable Virtual Trainers. ***FY 2022 Plans:*** FY 2022 Base RDTE dollars in the amount of $.502 million will allow Instructor Support System (ISS) combat training scenarios to continue to be improved in a Synthetic Training Environment (STE) utilizing the hardware and software solutions developed by Industry in FY 2021, FEMALE trauma mannequin, Human Physiology software, and dynamic wound patterns shall continue to be modified through contract action to represent Army requirements. RDT&E funding is required for the Virtual Prototype Patient System (VPS) line of effort for FY 2022 for the integration and validation of a relevant and realistic GENDER-specific FEMALE mannequin/trauma simulator. RDT&E funding is required for the Virtual Prototype Patient System (VPS) line of effort for FY 2022 for the verification, validation, and accreditation (VV&A) of software that simulates, for each GENDER of mannequin, the dynamics	0.473	0.432	0.502

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
of the Human Physiology to assess medical interventions and the verification, validation, and accreditation of hardware that represents the morphing wound patterns from gunshot, heat, chemical, electrical, biological, and nuclear events. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 RDTE increase required to enable the development, integration, and verification, validation, and accreditation (VV&A) of the GENDER specific Female trauma mannequin, the Human Physiology software model, and the hardware that represents the morphing wound patterns. Without increase in FY 2022 RDTE, the approved requirement will not be accomplished.			
Title: Live, Virtual, Constructive Integrating Architecture (LVC-IA) Engineering and Manufacturing Development (EMD) phase contract activity. ***Description:*** Continue EMD phase contract activities for the LVC-IA program. ***FY 2021 Plans:*** Live, Virtual, and Constructive-Integrating Architecture (LVC-IA) program will continue system development, integration and demonstration of the LVC-IA Version 4 capability which includes the developmental activities for Web-based optimization, Synthetic Training Environment (STE) compatibility, and concurrency with core system TADSS and Army Mission Command Information Systems. ***FY 2022 Plans:*** Live, Virtual, and Constructive-Integrating Architecture (LVC-IA) program will complete system development, integration and demonstration of the LVC-IA Version 4 capability which includes the developmental activities for Web-based optimization, Synthetic Training Environment (STE) compatibility, and concurrency with core system TADSS and Army Mission Command Information Systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY2021 to FY2022 is due to completion of Version 4 Development efforts.	3.794	4.345	2.642
Title: Live, Virtual, Constructive Integrating Architecture (LVC-IA) Program Government System Test and Evaluation. ***Description:*** Government System Test and Evaluation for the LVC-IA Program. ***FY 2021 Plans:*** LVC-IA will continue Federation Integration and System Measurement of Performance (SMP) events, and continue Functional Verification, Test Readiness Review (TRR) and Government Acceptance Testing for Version 4. Additionally, LVC-IA will continue integration testing and evaluation activities in support of LVC-IA interoperability with TADSS and other Mission Command Information Systems. ***FY 2022 Plans:***	1.130	1.277	0.631

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
LVC-IA will complete Federation Integration and System Measurement of Performance (SMP) events, Functional Verification, Test Readiness Review (TRR) and Government Acceptance Testing for Version 4. Additionally, LVC-IA will continue integration, testing and evaluation activities in support of LVC-IA interoperability with TADSS and other Mission Command Information Systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY2021 to FY2022 is due to completion of testing and evaluation activities in support of Version 4 Development efforts.			
Title: Government Program Management for the Live, Virtual, Constructive Integrating Architecture (LVC-IA) Program. ***Description:*** Government Program Management for the LVC-IA Program. ***FY 2021 Plans:*** Will provide program management, engineering and technical oversight, contract support, and travel for the LVC-IA Program. ***FY 2022 Plans:*** Will provide program management, engineering and technical oversight, contract support, and travel for the LVC-IA Program. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY2021 to FY2022 is due to the additional engineering and technical oversight, and travel to support program activities.	0.162	0.153	0.225
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Combat Training Center Live Fire Modernization (CTC Live Fire Mod) ***Description:*** Combat Training Center Live Fire Modernization (CTC Live Fire Mod) provides Future Army System of Integrated Targets (FASIT) qualified live-fire capable targets which includes Stationary Armor Targets (SAT) with accompanying Battlefield Effects Simulators (BES), Stationary Infantry Targets (SIT), Human Urban Targets (HUT), Double-Arm SITs, Moving Infantry Targets (MIT), and non-FASIT qualified Aviation 3-D and Unattended Aerial Systems (UAS) targets. These provide a capability for the CTCs to support the transition from Mission Rehearsal Exercise/Situational Training Exercise (MRE/ST) rotations to Unified Land Operations (ULO) against a hybrid threat. ***FY 2021 Plans:*** FY 2021 Base RDTE dollars in the amount of $2.409 million provides for development of the new Battlefield Effects Devices. These devices will focus on enhancing and simulating a hostile tank's main gun fire signature from a target device, tracer round shootback signature, and small arms hostile fire via pyrotechnic solutions. The pyrotechnic battlefield effect device effort will	-	2.409	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
provide for inexpensive and ruggedized systems that can be used to create a more realistic training environment for Soldiers to train with in a live fire environment. The pyrotechnic solutions will align with the defined OPTEMPO in the FASIT CPD. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** There is no funding in FY 2022. Program was subsumed into the Future Army System of Integrated Targets (FASIT) program.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Target Modernization program. ***Description:*** The Target Modernization program?s primary innovation goals are the development of trackless moving target systems, advanced non-contact ballistic hit detection and recognition system, high fidelity dynamic infrared threat representations, advanced human type targets, non-pyrotechnic battlefield effects replication systems, and augmented reality on live fire ranges; all aimed at increasing training realism, enhancing Soldier resiliency, and lowering life cycle costs. ***FY 2021 Plans:*** FY 2021 Base RDTE dollars in the amount of $3.650 million provides for the incremental funding of the Non-Contact Hit Sensor (NCHS) research and development aimed at the completion and obtainment of TRL 7/8 for the advanced non-contact ballistic hit detection and recognition system, to include environmental verification and performance testing. Funding will also initiate the Phase III SBIR contract for the non-pyrotechnic battlefield effects replication technologies. The Non-pyrotechnic battle field effects effort will focus on hostile shot replication, machine gun fire replication, black smoke generation, and sound effects simulators via non-pyrotechnic solutions. The Non-pyrotechnic battle field effects effort will provide for an inexpensive and ruggedized system that can be utilized to create accurate training environment realism enhancement. Current pyrotechnic solutions require specialized training, handling, and procurement of effects, and can effect training throughput by requiring the ranges to shut down during reloading. The non-pryo solutions will align with the defined OPTEMPO in the FASIT CPD. Funding will also support the 14 year old TRACR software baseline from a CORBA based CTIA v3.x based solution to a fully realized Service orchestrated HTML5.0 based CTIA v4.x compliant solution to ensure supportability, cybersecurity protections, and viability for the next ten years. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** There is no funding in FY 2022. Program was subsumed into the Future Army System of Integrated Targets (FASIT) program.	1.989	3.650	-
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Future Army System of Integrated Targets (FASIT). ***Description:*** The FASIT program's primary innovation goals are the development of trackless moving target systems, advanced non-contact ballistic hit detection and recognition system, high fidelity dynamic infrared threat representations, advanced human type targets, non-pyrotechnic battlefield effects replication systems, and augmented reality on live fire ranges; all aimed at increasing training realism, enhancing Soldier resiliency, and lowering life cycle costs.	-	-	5.859

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
The FASIT also provides qualified live-fire capable targets which includes Stationary Armor Targets (SAT) with accompanying Battlefield Effects Devices (BED), Stationary Infantry Targets (SIT), Human Urban Targets (HUT), Double-Arm SITs, Moving Infantry Targets (MIT), and non-FASIT qualified Aviation 3-D and Unattended Aerial Systems (UAS) targets. These provide a capability for the CTCs to support the transition from Mission Rehearsal Exercise/Situational Training Exercise (MRE/ST) rotations to Unified Land Operations (ULO) against a hybrid threat. ***FY 2022 Plans:*** FY 2022 Base RDTE dollars in the amount of $5.859 million provides for the incremental funding of the Dynamic Infrared Projection research and development aimed at the completion and obtainment of a Technology Readiness Level of 8/9 for the system to be able to portray realistic thermal images onto target presentation devices, to include environmental verification and performance testing. Funding will also incrementally fund the Phase III SBIR contract for the non-pyrotechnic battlefield effects replication technologies. The Non-pyrotechnic battle field effects effort will focus on hostile shot replication, machine gun fire replication, black smoke generation, and sound effects simulators via non-pyrotechnic solutions. The Non-pyrotechnic battle field effects effort will provide for an inexpensive and ruggedized system that can be utilized to create accurate training environment realism enhancement. Current pyrotechnic solutions require specialized training, handling, and procurement of effects, and can effect training throughput by requiring the ranges to shut down during reloading. The nonpryo solutions will align with the defined OPTEMPO in the FASIT CPD. It also provides for incremental funding of the new Battlefield Effects Devices. These devices will focus on enhancing and simulating a hostile tank's main gun fire signature from a target device, tracer round shootback signature, and small arms hostile fire via pyrotechnic solutions. The pyrotechnic battlefield effect device effort will provide for an inexpensive and rugged systems that can be used to create a more realistic training environment for Soldiers to train with in a live fire environment. The pyrotechnic solutions will align with the defined OPTEMPO in the FASIT CPD. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** There is no increase from FY 2021 to FY 2022. The FASIT program is not a new start program, but is the continuation of requirements and formal update to the New Generation Army Targetry System (NGATS) Operational Requirements Document (ORD) that was approved 11 Jun 96. FASIT will subsume the following programs: Combat Training Center Live Fire Modernization (CTC Live Fire Mod), Target Modernization, and Army Targetry Systems (ATS) into one ACAT II program of record.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Digital Range Training System (DRTS)	1.532	1.445	1.184
Description: Conduct development of a government-owned Technical Data Package (TDP) for the DRTS program to enable competitive acquisitions for targets. ***FY 2021 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
RDTE of $1.445 million will continue the development of a government-owned and managed Technical Data Package (TDP) for the target lifter devices utilized on the DRTS and other home station ranges. The funding will be used to complete the design efforts, build prototype units, and perform the developmental testing to validate that the TDP works as required and can be used for the future production of the target lifters. ***FY 2022 Plans:*** RDTE of $1.184 million will continue the development of a Government-owned and managed Technical Data Package (TDP) for the presentation devices utilized on the DRTS and Future Army Systems of Integrated Targets (FASIT). The funding will be used to complete the design efforts, build prototype units, and perform the developmental testing to validate that the TDP works as required and the presentation devices can be used to support the technology refresh and modernization efforts on all Army ranges. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to the estimated cost of development.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for Integrated Military Operations in Urban Terrain (MOUT) Training System (IMTS) ***Description:*** Conduct research into the development of an Army Data Center "cloud" migration strategy to assist in understanding the risks and technical challenges associated with taking software that is run at numerous (70+) IMTS standalone sites, connecting them to communications infrastructure, and managing the software and cybersecurity aspects through shared Information Technology (IT).	0.958	-	-
Title: Engineering and Manufacturing Development (EMD) phase contract activity for OPFOR Surrogate Wheeled Vehicles (OSWV) ***Description:*** EMD phase contract activities for the OSWV program.	3.560	-	-
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the OPFOR Integrated Air Defense System (IADS) ***Description:*** EMD phase contract activities for the IADS Program ***FY 2021 Plans:*** FY 2021 RDT&E funding for $2.566 million is to integrate the Tactical Engagement Simulation System (TESS) hardware onto the CH-47 platform, and integrate the Aircraft Survivability Equipment (ASE) training simulation into the CH-47F operational flight	-	2.566	0.575

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
program. Integration is followed by validation through analysis, demonstration, and testing in the CH-47F system integration laboratory, and ground and flight testing for airworthiness qualification conducted at Redstone Test Center. ***FY 2022 Plans:*** FY 2022 RDTE funding of $0.575 million will be used to start development of weapon processor software, integration with the training instrumentation systems at the Combat Training Centers (CTCs), and validate the solution through testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease is due to the estimated cost of development.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for Basic Electronics Maintenance Trainer (BEMT) ***Description:*** BEMT provides the essential modernized electronic system maintenance training capability for the Army, Army National Guard, and the Army Reserve to achieve Military Occupational Specialty-Qualification (MOS-Q) for 40 MOS at 24 Active, National Guard, and Army Reserve camps, posts, and stations. BEMT will be modernizing the electronics maintenance training. BEMT provides training in basic electronics, while saving institutions significant administrative expenses over live training alternatives. ***FY 2021 Plans:*** FY 2021 Base RDTE dollars in the amount of $.229 million will fund the enhancement of the Learning Management System courseware. Developing solutions to improve Army Enterprise server capability. ***FY 2022 Plans:*** FY 2022 Base RDTE dollars in the amount of $.306 million will continue to fund the enhancement of the Learning Management System courseware. Developing solutions to improve Army Enterprise server capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to estimate to complete enhancements of the Learning Management System courseware.	0.173	0.229	0.306
Title: Engineering and Manufacturing Development (EMD) phase contract activity for OPFOR Attack Aircraft Shoot-back Capability (OA2SBC) program ***Description:*** EMD phase contract activities for the OPFOR Attack Aircraft Shoot-back Capability (OA2SBC) program. ***FY 2021 Plans:***	-	0.194	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Base RDTE dollars in the amount of $.194 million will be used to develop weapon processor software, integrate with the training instrumentation systems at the Combat Training Centers (CTCs), then validate the solution through testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** OA2SBC reached FOC in FY 2018 and is receiving a scheduled technology refresh in FY 2021. It will have another scheduled technology refresh in FY 2025.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Unmanned Aerial System (UAS) Swarm ***FY 2022 Plans:*** FY 2022 RDTE of $1.037 million provides for the incremental funding for development of UAS Swarm software and integration with 4G/LTE networks, development of payload and integration, initial operational assessments, and will support hardware development for charging stations, tablets, and manual/remote deployment systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** This is a new start in FY 2022.	-	-	1.037
Accomplishments/Planned Programs Subtotals	26.285	27.013	26.540

	FY 2020	FY 2021
Congressional Add: Radio Frequency Emitters ***FY 2020 Accomplishments:*** Provide Radio Frequency Threat Emitters for Army Combat Training Centers.	3.500	-
Congressional Adds Subtotals	3.500	-

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
• MA6600: *Combat Training Centers Support*	125.411	90.580	79.565	-	79.565	-	-	-	-	-	-
• NA0100: *Training Devices, Nonsystem*	215.453	161.814	174.644	-	174.644	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Competitive development efforts based on performance specifications.

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1. In FY 2019 - 2022, Combat Training Center Instrumentation Systems (CTC-IS) RDTE will be used to fund a Life Cycle Product-line Management (LCPM) contract structured as a 5 year Single Award Indefinite-Delivery/Indefinite-Quantity (IDIQ) for the implementation of a Hardware Product Line (HPL), the contractor was selected. The strategy is to establish a deliberate approach to Life Cycle Management (LCM) of Live Training Family of Systems, providing the framework for future Life Cycle Efforts for the Hardware Product Line Framework.

2. In FY 2020, a new competitive IDIQ contract with a 1-year base and 7 single-year option periods was awarded to General Dynamics Mission Systems - CTIA will be executed under this contract.

3. The LVC-IA Enhanced Capability contract is the competitively awarded follow-on effort awarded in 3rd Quarter FY 2016. This contract has a two-year base and four single-year option periods to provide the additional capabilities for Versions 3, 4 and beyond. The contract was awarded to Cole Engineering and Science, Inc. (CESI) to provide for the development, fielding and training of each version capability for the designated Basis of Issue Plan (BOIP) sites and provide Post-Deployment Software Support (PDSS) for all currently fielded versions. In FY 2021, the program will commence competitive action to award the LVC-IA contract in the 2nd Quarter FY 2022; this follow-on award will continue concurrency effort through program completion slated for FY2035.

4. In FY 2022, FASIT will award the first year of a projected three-year Phase III SBIR for the maturation and product development of the Dynamic Infrared Projection capability. In FY 2022, the program will incrementally fund year 2 of a three-year the Phase III SBIR contract for the maturation and product development of the nonpyrotechnic battlefield effects replication technologies. FASIT will also incrementally fund year 2 of a Research and Development contract for the maturation and product development of the non-pyrotechnic battlefield effects replication technologies.

5. In FY2022, the Digital Range Training System (DRTS) will fund a new Delivery Order under the Life Cycle Product-line Management (LCPM) IDIQ contract, which will finalize the development and testing of the target Technical Data Package (TDP).

6. In FY 2019, OPFOR Surrogate Wheeled Vehicles (OSWV) pursued an organic solution to develop, integrate and test Visual Modifications for Tactical and Technical Vehicles.

7. In FY 2022, Instrumentable-Multiple Integrated Laser Engagement System (I-MILES) will leverage the General Dynamics contract vehicle and competitive OTA approaches to address EUL / relevancy challenges as product lines reach those trigger points in their life cycle or changes to weapon system configurations drive those actions. This effort would enable a wide range of industry partners to integrate LTEC/LPAN into existing systems and execute Tech Refresh activities as required until Live STE capabilities are introduced.

8. In FY 2021, Home Station Instrumentation Training System (HITS) awarded a new delivery order on the General Dynamics contract.

9. In FY 2022, OPFOR Integrated Air Defense System (IADS) will start development of weapon processor software, integration with the training instrumentation systems at the Combat Training Centers (CTCs), and validate the solution through testing.

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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
OneTESS Program Management	Various	PEO STRI : Orlando, FL	8.046	-		-		-		-		-	0.000	8.046	8.046
OneTESS Program Management	Various	PEO STRI, : Orlando, FL	2.040	-		-		-		-		-	0.000	2.040	2.040
HITS Program Management	Various	PEO STRI : Orlando, FL	1.348	-		-		-		-		-	0.000	1.348	1.348
CTC-IS Program Management	Various	PEO STRI : Orlando, FL	9.018	-		-		-		-		-	0.000	9.018	9.018
MSTC Program Management	Various	PEO STRI : Orlando, FL	0.952	-		-		-		-		-	0.000	0.952	0.952
I-MILES Program Management	Various	PEO STRI : Orlando, FL	0.511	-		-		-		-		-	0.000	0.511	0.511
EST Program Management	Various	PEO STRI : Orlando, FL	0.214	-		-		-		-		-	0.000	0.214	0.214
LVC-IA Program Management	Various	PEO STRI : Orlando, FL	10.865	0.162	Nov 2019	0.153	Nov 2020	0.225	Nov 2021	-		0.225	Continuing	Continuing	Continuing
Target Modernization	Various	PEO STRI : Orlando, FL	0.614	-		-		-		-		-	0.000	0.614	0.614
ETC-IS Program Management	Various	PEO STRI : Orlando, FL	0.164	-		-		-		-		-	0.000	0.164	0.164
CTIA	Various	PEO STRI : ORLANDO, FL	0.876	-		-		-		-		-	0.000	0.876	0.876
Soldier Fitness Program	TBD	Mulitple : Various	2.100	-		-		-		-		-	0.000	2.100	2.100
Suicide Prevention	TBD	Multiple : Various	4.313	-		-		-		-		-	0.000	4.313	4.313
SVT Program Management	Various	PEO STRI : Orlando, FL	0.049	-		-		-		-		-	0.000	0.049	0.049
OPFOR Integrated Air Defense System (IADS) Program Management	Various	PEO STRI : Orlando, FL	0.742	-		-		-		-		-	0.000	0.742	0.742
Congressional Add for Combined Arms Center	Various	PEO STRI : Huntsville, AL	0.177	-		-		-		-		-	0.000	0.177	0.177

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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
Threat Integrated Air Defense System															
		Subtotal	42.029	0.162		0.153		0.225		-		0.225	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
I-MILES	Option/ IDIQ	General Dynamics Mission Systems : Orlando, FL	1.481	1.304	Oct 2019	2.700	Mar 2021	2.828	Dec 2021	-		2.828	Continuing	Continuing	Continuing
I-MILES RELEVANCY	SS/IDIQ	Lockheed Martin : Orlando, FL	3.922	1.215	May 2020	-		-		-		-	0.000	5.137	5.137
HITS	C/FFP	Riptide : Orlando, FL	1.379	-		-		-		-		-	0.000	1.379	1.379
HITS	C/IDIQ	General Dynamics Mission Systems : Orlando, FL 32826	4.009	2.427	Jul 2020	1.180	Jul 2021	-		-		-	0.000	7.616	7.616
HITS	Option/ IDIQ	General Dynamics Mission Systems (GDMS) : Orlando, FL 32826	3.154	1.058	Jan 2020	0.630	Jan 2021	4.153	Mar 2022	-		4.153	Continuing	Continuing	Continuing
MSTC Development	C/FP	Multiple : Various	5.128	0.473	Jul 2020	0.432	Jul 2021	0.502	Jul 2022	-		0.502	Continuing	Continuing	Continuing
LVC-IA Development	C/CPFF	Cole Engineering Services, Inc : Orlando, FL	29.822	-		-		-		-		-	0.000	29.822	29.822
LVC-IA Enhanced Capability	C/CPFF	Cole Engineering Services, Inc (CESI) : Orlando, FL	5.706	-		-		-		-		-	0.000	5.706	5.706
LVC-IA Enhanced Capability	Option/ CPFF	Cole Engineering Services, Inc (CESI) : Orlando, FL	9.769	3.794	Nov 2019	4.345	Nov 2020	0.661	Nov 2021	-		0.661	0.000	18.569	18.569
LVC-IA Follow-On Contract	C/TBD	TBD : TBD	-	-		-		1.981	Feb 2022	-		1.981	Continuing	Continuing	Continuing

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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
OneTESS	SS/CPFF	General Dynamics C4 Systems : Orlando, FL 32826	10.430	-		-		-		-		-	0.000	10.430	10.430
EST Development	C/FP	Cubic Simulation Systems, Inc. : Orlando, FL 32809-3813	1.528	-		-		-		-		-	0.000	1.528	1.528
OneTESS	SS/CPFF	General Dynamics : Fairfax, VA	124.769	-		-		-		-		-	0.000	124.769	124.769
CTIA	C/CPFF	General Dynamics Mission Systems, Inc (GDMS) : Orlando, FL	-	2.420	Jan 2020	2.417	Jan 2021	2.550	Jan 2022	-		2.550	Continuing	Continuing	Continuing
Target Modernization	SS/CPFF	Digital Solid State Propulsion, Inc. : Reno, NV	-	-		2.163	Feb 2021	-		-		-	0.000	2.163	2.163
CTC-IS	C/IDIQ	General Dynamics Mission Systems : Orlando, Fl	42.586	2.519	Feb 2020	1.573	Mar 2021	0.541	May 2022	-		0.541	Continuing	Continuing	Continuing
Target Modernization	SS/CPFF	SensorMetrix : San Diego, CA	-	1.989	Jan 2020	1.487	Jan 2021	-		-		-	0.000	3.476	3.476
EST Enhanced Capabilities	C/FFP	Meggitt Training Systems, Inc. : Suwanee, GA 30024-1247	2.075	-		-		-		-		-	0.000	2.075	2.075
EST	C/FP	Nova Technologies : Panama City, FL 32404-6747	0.609	-		-		-		-		-	0.000	0.609	0.609
CTC IS	Option/ IDIQ	GENERAL DYMAMICS ONE SOURCE : ORLANDO, FL	-	-		-		1.948	Feb 2022	-		1.948	Continuing	Continuing	Continuing
Target Modernization	C/CPFF	JRM Technologies : Orlando	1.149	-		-		-		-		-	0.000	1.149	1.149

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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
Future Army System of Integrated Targets (FASIT) Battlefield Effects Devices	C/CPFF	General Dynamics One Source, LLC : Fairfax, VA	-	-		-		2.137	Feb 2022	-		2.137	Continuing	Continuing	Continuing
Future Army System of Integrated Targets (FASIT) Dynamic Infrared Projection	SS/CPFF	JRM Technologies : Orlando, FL	-	-		-		1.600	Jan 2022	-		1.600	Continuing	Continuing	Continuing
Future Army System of Integrated Targets (FASIT) Non-Pyro Effects	SS/CPFF	Digital Solid State Propulsion, Inc. : Reno, NV	-	-		-		2.122	Feb 2022	-		2.122	Continuing	Continuing	Continuing
Digital Range Training System (DRTS)	C/CPFF	General Dynamics Mission Systems : Orlando, FL	1.539	1.532	Jan 2020	-		-		-		-	0.000	3.071	3.071
Digital Range Training System (DRTS)	Option/ CPFF	General Dynamics One Source, LLC : Fairfax, VA	-	-		1.445	Jan 2021	1.184	Jan 2022	-		1.184	Continuing	Continuing	Continuing
OPFOR Integrated Air Defense System (IADS)	MIPR	PEO IEWS, PM Aircraft Survivability Equipment (ASE) : Huntsville, AL	21.371	-		-		-		-		-	0.000	21.371	21.371
OPFOR Integrated Air Defense System (IADS)	MIPR	Target Systems Management Office, PEO STRI, PEO STRI : Huntsville, AL	0.915	-		-		-		-		-	0.000	0.915	0.915
OPFOR Integrated Air Defense System (IADS) MANPADS	TBD	TBS : Orlando, FL	-	-		-		0.575	Dec 2021	-		0.575	Continuing	Continuing	Continuing
Radar Signal Emulator Development for IADS	C/TBD	To Be Determined : Orlando, FL	9.520	-		-		-		-		-	0.000	9.520	9.520
OPFOR Surrogate Wheeled Vehicles (OSWV)	IA	Tank Automotive Research Development and Engineering Center : Warren, MI	2.783	3.560	Mar 2020	-		-		-		-	0.000	6.343	6.343

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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
Unmanned Aerial System Swarm	Option/ CPFF	Colsa : Huntsville, AL	-	-		-		1.037	Jan 2022	-		1.037	Continuing	Continuing	Continuing
Congressional Add for Radio Frequency Emitters	C/TBD	ACC, Orlando : Orlando, Florida	-	3.500	Mar 2020	-		-		-		-	0.000	3.500	3.500
EST Enhanced Capabilities Adaptive Marksmanship and Intelligent Tutoring	C/FFP	Dignitas Technologies : Orlando, FL 32817	0.776	-		-		-		-		-	0.000	0.776	0.776
Integrated Military Operations in Urban Terrain (MOUT) Training System (IMTS)	C/CPFF	General Dynamcis Mission Systems : Orlando, FL	-	0.958	Jan 2020	-		-		-		-	0.000	0.958	0.958
Congressional Add for Combined Arms Center Threat Integrated Air Defense System	C/CPFF	Scientific Research Corporation : Huntsville, AL	9.823	-		-		-		-		-	0.000	9.823	9.823
Combat Training Center Live Fire Modernization (CTC Live Fire Mod)	C/CPFF	General Dynamics One Source, LLC : Fairfax, VA	-	-		2.409	Feb 2021	-		-		-	0.000	2.409	2.409
ETC-IS	SS/CPFF	General Dynamics C4 Systems : Orlando, FL 32826	4.836	-		-		-		-		-	0.000	4.836	4.836
CTIA	Option/ IDIQ	General Dynamics Mission Systems : Orlando, FL	20.808	-		-		-		-		-	0.000	20.808	20.808
Target Modernization	C/IDIQ	Pratt and Miller Engineering : Orlando, FL	6.600	-		-		-		-		-	0.000	6.600	6.600
CTC-IS	C/IDIQ	GENERAL DYMAMICS ONE SOURCE : Orlando, FL	4.436	1.571	Aug 2020	1.813	Aug 2021	1.397	Oct 2021	-		1.397	Continuing	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 0604715A / *Non-System Training Devices - Eng Dev*	**Project (Number/Name)** 241 / *Nstd Combined Arms*

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
Target Modernization	Option/ CPFF	Pratt and Miller Engineering (P&M) : Orlando, FL	4.714	-		-		-		-		-	0.000	4.714	4.714
CFFT Enhanced Joint Fires Observer (JFO) Training and Certification Requirements	C/IDIQ	Nova Technologies : Panama City, FL 32404-6747	1.242	-		-		-		-		-	0.000	1.242	1.242
Congressional Add Center of Excellence for Military Operations in Urban Terrain and Cultural Trn	C/FP	Multiple : Various	2.996	-		-		-		-		-	0.000	2.996	2.996
Soldier/Squad Virtual Trainer (S/SVT) Program	C/CR	OTA - CUBIC and MEGGITT : Orlando, FL	5.534	-		-		-		-		-	0.000	5.534	5.534
Basic Electronics Maintenance Trainer (BEMT)	SS/FFP	Nida Corp : Melbourne, FL	-	0.173	Jan 2020	0.229	Nov 2020	0.306	Nov 2021	-		0.306	0.000	0.708	0.708
OPFOR Attack Aircraft Shoot-back Capability	C/TBD	TBS : Orlando, FL	-	-		0.194	Mar 2021	-		-		-	0.000	0.194	0.194
		Subtotal	345.409	28.493		23.017		25.522		-		25.522	Continuing	Continuing	N/A

Remarks

1. The Instrumentable-Multiple Integrated Laser Engagement System (I-MILES) - FY22 is the final phase of the LTEC integration into VTESS and TVS. Consequently the effort is ramping down in terms of burn rate per month from FY21.
2. The LVC-IA program plans to award its follow-on contract in the 2nd quarter of FY 2022. This follow-on award will continues their concurrency efforts with the Synthetic Training Environment (STE) and Mission Command Information Systems (MCIS) through program completion slated for FY 2035.

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
CTIA	Various	Various : Various	12.844	-		-		-		-		-	0.000	12.844	12.844
OneTESS	Various	Various : Orlando, FL	6.596	-		-		-		-		-	0.000	6.596	6.596

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 0604715A / *Non-System Training Devices - Eng Dev*	Project (Number/Name) 241 / *Nstd Combined Arms*	

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
OneTESS	Various	Various : Various	0.262	-		-		-		-		-	0.000	0.262	0.262
Target Modernization	Various	Various : Various	0.192	-		-		-		-		-	0.000	0.192	0.192
		Subtotal	19.894	-		-		-		-		-	0.000	19.894	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
OneTESS Development & Test	Various	Multiple : Orlando, FL	4.162	-		-		-		-		-	0.000	4.162	4.162
OneTESS Test Support	Various	Multiple : Orlando, FL	1.280	-		-		-		-		-	0.000	1.280	1.280
HITS	Various	Various : Orlando, FL	0.740	-		-		-		-		-	0.000	0.740	0.740
LVC-IA Test Support	Various	Multiple : Orlando, FL	11.233	1.130	Nov 2019	1.277	Nov 2020	0.631	Nov 2021	-		0.631	Continuing	Continuing	Continuing
IEDES	Various	Multiple : Orlando, FL	0.519	-		-		-		-		-	0.000	0.519	0.519
OPFOR Integrated Air Defense System (IADS)	SS/CPFF	Inter-Coastal Electronics, Inc. : Mesa, AZ	6.120	-		2.566	Mar 2021	-		-		-	0.000	8.686	8.686
I-MILES EPG Testing	MIPR	ATEC : FT Huachuca, AZ	0.162	-		-		0.162	Mar 2022	-		0.162	Continuing	Continuing	Continuing
		Subtotal	24.216	1.130		3.843		0.793		-		0.793	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	431.548	29.785		27.013		26.540		-		26.540	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 0604715A / *Non-System Training Devices - Eng Dev*	**Project (Number/Name)** 241 / *Nstd Combined Arms*

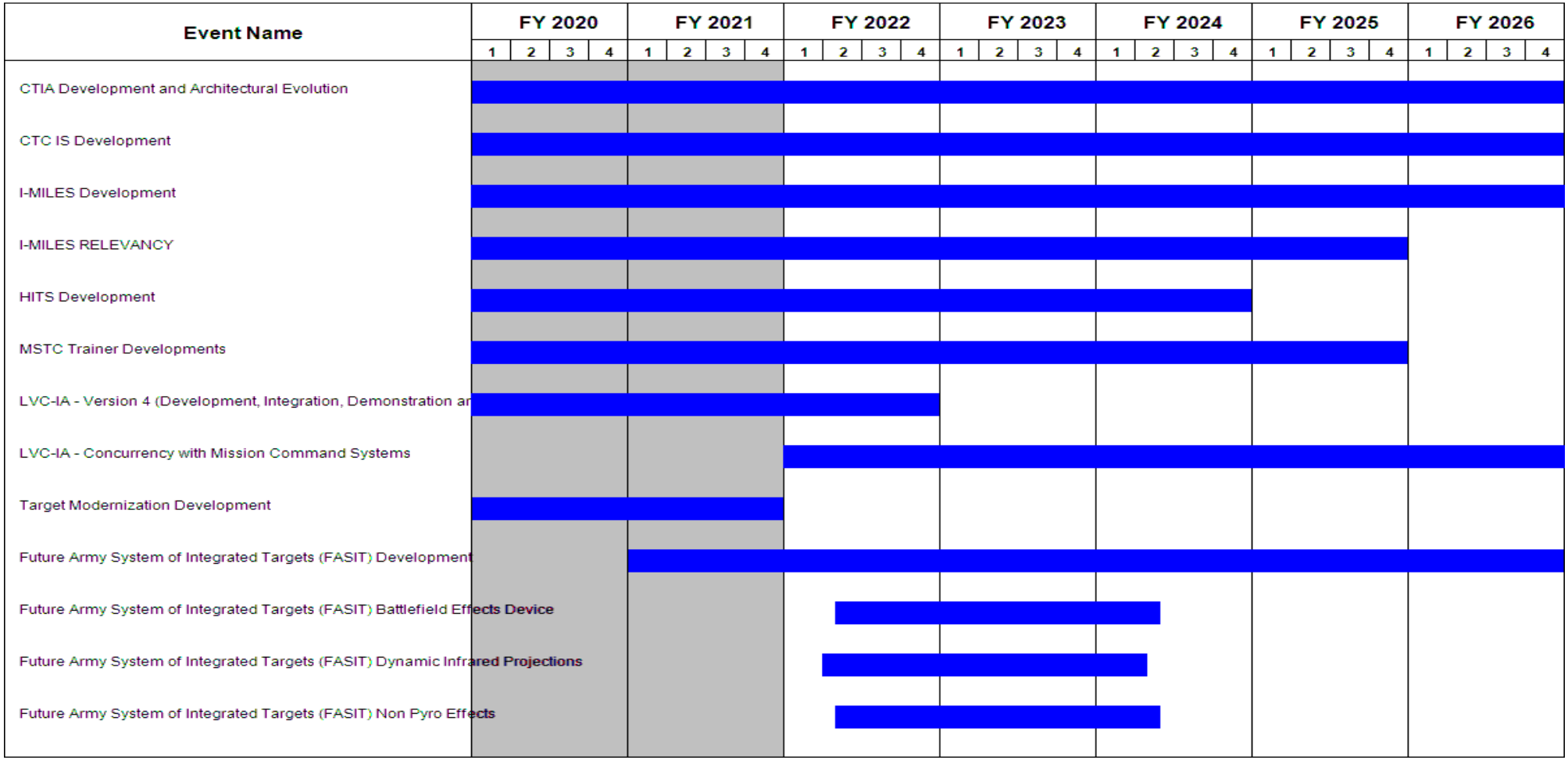

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604715A / *Non-System Training Devices - Eng Dev*	**Project (Number/Name)** 241 / *Nstd Combined Arms*

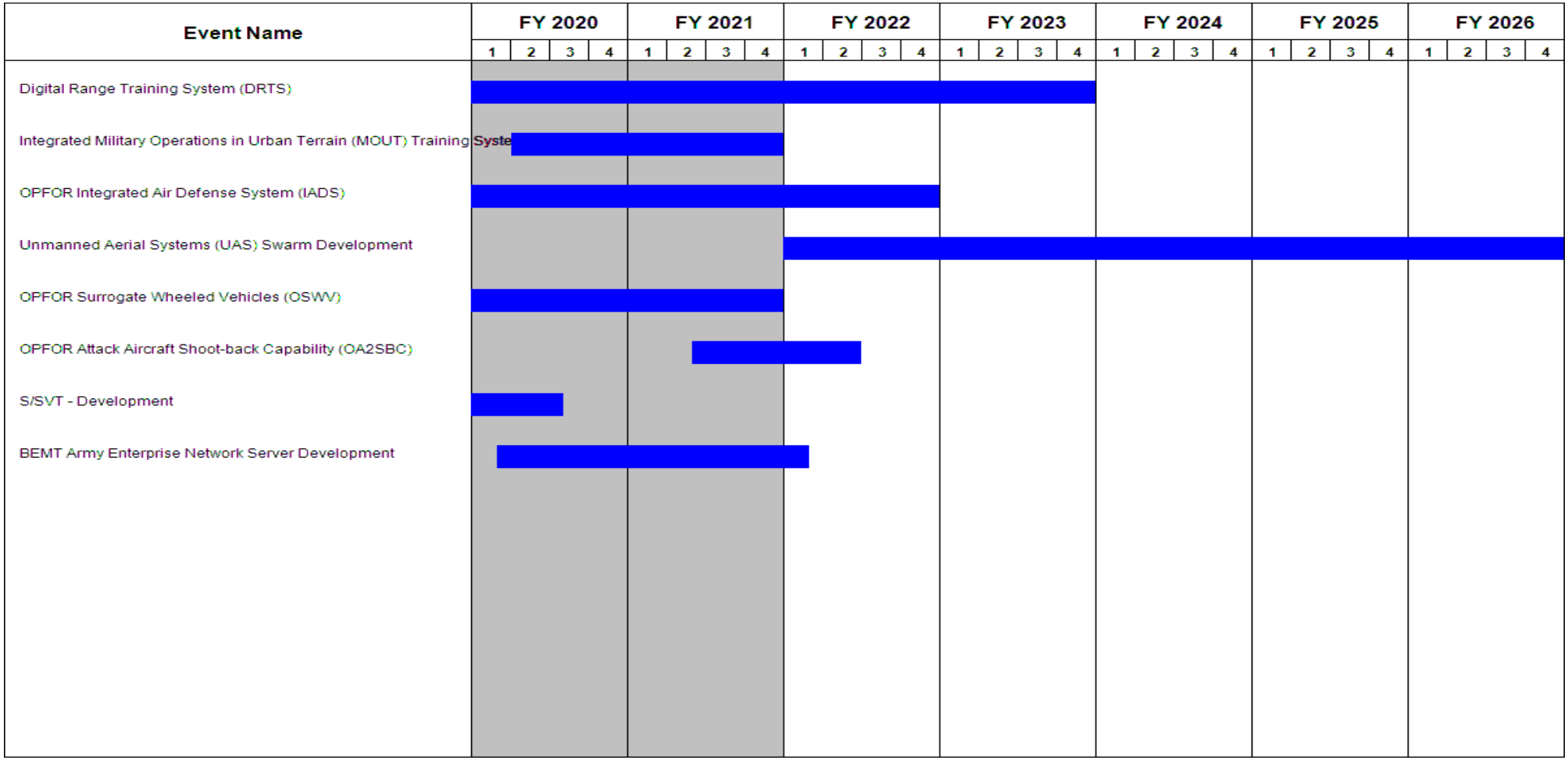

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604715A / *Non-System Training Devices - Eng Dev*	**Project (Number/Name)** 241 / *Nstd Combined Arms*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CTIA Development and Architectural Evolution	1	2012	4	2026
CTC IS Development	1	2010	4	2026
I-MILES Development	2	2017	3	2027
I-MILES RELEVANCY	2	2018	4	2025
HITS Development	3	2012	4	2024
MSTC Trainer Developments	2	2017	4	2025
LVC-IA - Version 3 (Development, Integration, Demonstration and Testing)	4	2016	3	2018
LVC-IA - Version 4 (Development, Integration, Demonstration and Testing)	4	2018	4	2022
LVC-IA - Concurrency with Mission Command Systems	1	2022	4	2035
Target Modernization Development	1	2016	4	2021
Future Army System of Integrated Targets (FASIT) Development	1	2021	4	2026
Future Army System of Integrated Targets (FASIT) Battlefield Effects Device	2	2022	2	2024
Future Army System of Integrated Targets (FASIT) Dynamic Infrared Projections	2	2022	2	2024
Future Army System of Integrated Targets (FASIT) Non Pyro Effects	2	2022	2	2024
Digital Range Training System (DRTS)	2	2018	4	2023
Integrated Military Operations in Urban Terrain (MOUT) Training System (IMTS)	2	2020	4	2021
OPFOR Integrated Air Defense System (IADS)	4	2017	4	2022
Unmanned Aerial Systems (UAS) Swarm Development	1	2022	4	2026
OPFOR Surrogate Wheeled Vehicles (OSWV)	2	2019	4	2021
OPFOR Attack Aircraft Shoot-back Capability (OA2SBC)	2	2021	2	2022
S/SVT - Development	3	2019	3	2020
BEMT Army Enterprise Network Server Development	1	2020	1	2022