Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604818A *I Army Tactical Command & Control Hardware & Software*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	126.676	155.017	111.690	-	111.690	111.612	69.378	69.504	70.236	Continuing	Continuing
323: *Common Hardware Systems*	-	4.816	4.592	5.121	-	5.121	4.728	5.126	5.128	5.177	Continuing	Continuing
C29: *Centralized Technical Support Facility (CTSF)*	-	4.981	7.345	12.539	-	12.539	4.473	4.573	4.678	4.781	Continuing	Continuing
C34: *Army Tac C2 Sys Eng*	-	9.351	9.409	11.965	-	11.965	11.376	11.676	11.679	11.793	Continuing	Continuing
EJ4: *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*	-	26.485	35.117	28.070	-	28.070	28.173	28.258	28.268	28.543	Continuing	Continuing
EJ5: *MOUNTED COMPUTING ENVIRONMENT (MCE)*	-	9.994	21.874	-	-	-	-	-	-	-	Continuing	Continuing
EJ6: *TACTICAL ENHANCEMENT*	-	-	7.860	-	-	-	-	-	-	-	0.000	7.860
EK9: *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*	-	3.252	3.366	3.400	-	3.400	-	-	-	-	0.000	10.018
EQ8: *Mobile/Handheld Computing Environment (M/HHCE)*	-	4.967	5.105	5.298	-	5.298	5.327	5.390	5.392	5.444	Continuing	Continuing
ER9: *Expeditionary Army Command Post*	-	43.803	51.003	31.483	-	31.483	43.352	-	-	-	0.000	169.641
EW3: *Unit Task Reorganization (UTR) Development*	-	19.027	9.346	13.814	-	13.814	14.183	14.355	14.359	14.498	Continuing	Continuing

A. Mission Description and Budget Item Justification

A portion of this funding line is directly aligned to the Army Network Modernization Priority. This funding line supports the Army Network Modernization Strategy LOE 1, Unified Network, LOE 2 - Common Operating Environment and LOE 4 - Command posts. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604818A *I Army Tactical Command & Control Hardware & Software*

Project 323, Common Hardware Systems (CHS) is an ACAT III program that is a key enabler of the Army Modernization Priorities in support of the Army's Network Modernization Strategy Lines of Effort: (1) Unified Network Transport, (2) Common Operating Environment, (3) Interoperability, and (4) Command Post Mobility and Survivability. CHS is a mandated Army Strategic Source, as annotated in AR 25-1 that acquires and sustains highly flexible, cost-effective, and simplified non-developmental solutions that integrate the latest and emerging commercial information technology onto the Converged Mission Command Network. Efforts are aligned to support the Network Cross-Functional Team (CFT) capability set approach to achieve network modernization strategy goals. This funding line also supports network solution procurement and sustainment for U.S. Army Reserves, U.S. Army National Guard, U.S. Navy, U.S. Air Force, U.S. Marine Corps, and other Federal agencies. The CHS-5 contract averages approximately 315 contract actions annually.

Project C29, the Central Technical Support Facility (CTSF), is the Army's single strategic facility responsible for executing Army Interoperability Certification (AIC) system of system verification/validation checkout, testing, and configuration management for the Army's LandWarNet Baseline. The Centralized Technical Support Facility (CTSF) funding line supports the Army's Network Modernization Strategy Line of Effort LOE 1B Network Enabling Functions.

Project C34, the Army Tac C2 Sys Eng project funds the PEO Command, Control, Communications-Tactical (PEO C3T) the System-of-Systems engineering, Enterprise and Integration efforts. The system engineering efforts are to facilitate the overall network interoperability of all the various programs that must be able to seamlessly connect together while addressing their individual distinct requirements. Efforts address continuing evolution of the network within the PEO C3T portfolio of technology across capability enhancement packages, in line with the Network CFT capability set strategy, to deliver efficient and effective cross-domain technical solution.

Project EJ4, the Command Post Computing Environment (CPCE) implements an integrated, interoperable, cyber-secure, software infrastructure that serves as the host for a unified set of multiple warfighting functional applications within the command post at echelons Battalion to Army Service Component Command (ASCC); eliminating "stove-piped" legacy systems, duplicative or redundant implementations, simplifying future application development efforts, and enhancing interoperability and data sharing across multiple echelons. CPCE software infrastructure and applications reside on Tactical Server Infrastructure (TSI) hardware and BCCS/TSI servers previously fielded under the TMC/MCS program of record. CPCE/TSI provides the hardware infrastructure to host capabilities, such as movement and maneuver applications, network enabling tools (i.e. Cyber Situational Understanding and Tactical Defensive Cyber Operation Infrastructure) and warfighting function applications. This software infrastructure provides the Army's Common Operating Picture (COP) solution, enabling interoperability between command posts, mounted platforms, and dismounted handheld devices while supporting collaboration with Joint and Unified Action partners. CPCE provides common look and feel (user interface), common data strategy, interoperable tactical messaging/ chat, and essential warfighting capabilities.

Project EJ5, the Mounted Computing Environment (MCE), is one of the six computing environments (CEs) formalized by the AAE under the Common Operating Environment (COE) initiative. MCE is now called, Mounted Mission Command - Software (MMC-S), an ACAT II program, after a successful Materiel Development Decision (MDD) briefing in Feb. 2020. MMC-S standardizes end-user environments and enables streamlined deployment of new warfighting applications while leveraging existing hardware under the Joint Battle Command - Platform program. Requirements for MMC-S are established in the AROC approved COE Information Systems Initial Capability Document (IS ICD) and the approved Mounted Computing Environment Requirements Definition Package (RDP). The MMC-S will provide incremental improvements with additional application capabilities over time, and will be interoperable with Command Post and Mobile/Handheld systems.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604818A *I Army Tactical Command & Control Hardware & Software*

Project EJ6, This funding line is directly aligned to the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional
Team capability set approach to achieve the network modernization strategy.
TROPO: Tactical Enhancement supports the evaluation and testing requirements for Troposcatter Transmission (TROPO) capabilities procured and fielded under the Signal Modernization (SIGMOD) funding line, B00010. TROPO will provide redundancy communications in a Satellite denied environment by providing improved Line of Sight and beyond line of sight radio systems.
Enables Mission Command in a Satellite Denied environment by providing Beyond Line of Sight (BLOS) capability over longer ranges and at higher throughput than the current BLOS System. TROPO extends the network by utilizing a significantly reduced SWaP radio verses the current system. TROPO will enable Army units to reduce reliance on costly satellite bandwidth.
COMMAND POST NETWORKING: Enables Command Post networking capabilities by providing communications solutions to enable a more survivable Command Post against near peer advisories. The solutions will utilize advanced waveform and antenna improvements to decrease radio frequency detection and interception in the battlefield and will be integrated onto the appropriate platforms to increase Command Post survivability.

Project EK9, Tactical Network Operations Management's (TNOM) purpose is to create Unified Network Operations (UNO). UNO is a software centric, integrated NetOps capability being developed, as a rapid prototype - proceeding under Mid-Tier Acquisition (MTA) authority granted by the Army Acquisition Executive (AAE)'s 14 May 2019 Acquisition Decision Memorandum (ADM). Enabling common planning, configuration, monitoring, provisioning, management, and defense of the Network, UNO configures and integrates tactical and enterprise networks to allow delivery of information and communications among Soldiers at all echelons utilizing network resources prioritized according to the Commander's intent. In developing UNO, TNOM follows the Army's Development of Operations (DevOps) approach - creating Network Operations (NetOps) prototypes, gaining user feedback, making adjustments and ultimately delivering enhanced capabilities to the operational force in the shortest time possible. UNO development incorporates solutions available in industry and through government agencies - assessing them in an adapt-and-buy approach informed by experimentation, demonstration, and modernization.

Project EQ8, Mobile/Handheld Computing Environment (M/HHCE), is one of the six computing environments (CEs) formalized by the AAE under the Common Operating Environment (COE) initiative and supports the Nett Warrior (NW) also known as the Ground Soldier Systems (GSS) program. The program leverages commercial smart devices and secure Army tactical radios, Commercial 4G/LTE/WIFI and cloud-based infrastructure to provide the dismounted leader an integrated mission command and situational awareness system for use during combat operations. The NW system provides leaders electronic real-time information on friendly positions; information about enemy activity and movement; navigational data and map imagery; a collaborative planning tool; and other mission related graphics which effectively puts the power of the entire Army tactical network in the hands of the dismounted leader. The NW hardware is the computational platform that other M/HHCE systems run their applications. The M/HHCE will provide incremental improvements with additional application capabilities over time, and will be interoperable with Command Post CE and Mounted CE systems.

Project ER9, Command Post Integrated Infrastructure (CPI2), fields mobile Command Post nodes by integrating mission command solutions into vehicle platforms and mounted shelter systems to enhance the survivability and mobility of command post formations. CPI2 will replace selected elements of the legacy command post to provide improved expeditionary capability, survivability, agility, and scalability for command post formations at all echelons. By integrating mission command

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604818A *I Army Tactical Command & Control Hardware & Software*

warfighting functions on to vehicle platforms, a dispersed command post construct will enable the battle staff to blend in with the overall maneuver formation while giving the commander the ability to synchronize the close fight on the move.

Project EW3, Unit Task Reorganization (UTR) funding line supports the Army Network Plan Framework objective to deliver a Standards Based Network Architecture. This will enable modernizing the Mission Command Network through the coordination of a common set of network operations tools and infrastructure development supporting the unit communication staff's ability to conduct Network Planning, Network Provisioning and Network Management. Network Planning efforts include the development of an integrated planning tool suite to improve Signal Soldiers ability to plan and develop configurations for upcoming operations and deployments. Network Provisioning efforts include development of tools and technology that provide a means to deliver configurations developed during the Network Planning with little to no manual involvement by the Soldier. Network Management efforts replace stove-piped management systems and replaces them with integrated tools that provide a consolidated, as well as detailed, view of the network and its components.

The total cost of the Unified Network Operations (UNO) Middle Tier of Acquisition (MTA) effort is $84.352 million RDT&E from FY19 to FY24. The remainder (FY23-24) of the $31.397 million for UNO MTA is fully funded across the Future Years Defense Program (FYDP).

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	128.676	162.704	0.000	-	0.000
Current President's Budget	126.676	155.017	111.690	-	111.690
Total Adjustments	-2.000	-7.687	111.690	-	111.690
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-7.487			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.000	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	111.690	-	111.690
• FFRDC Transfer	-	-0.200	-	-	-

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*				Project (Number/Name) 323 / *Common Hardware Systems*			
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
323: *Common Hardware Systems*	-	4.816	4.592	5.121	-	5.121	4.728	5.126	5.128	5.177	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common Hardware Systems (CHS) is an ACAT III program that is a key enabler of the Army Modernization Priorities in support of the Army's Network Modernization Strategy Lines of Effort: (1) Unified Network Transport, (2) Common Operating Environment, (3) Interoperability, and (4) Command Post Mobility and Survivability. CHS is a mandated Army Strategic Source, as annotated in AR 25-1 that acquires and sustains highly flexible, cost-effective, and simplified non-developmental solutions that integrate the latest and emerging commercial information technology onto the Converged Mission Command Network. Efforts are aligned to support the Network Cross-Functional Team (CFT) capability set approach to achieve network modernization strategy goals. This funding line also supports network solution procurement and sustainment for U.S. Army Reserves, U.S. Army National Guard, U.S. Navy, U.S. Air Force, U.S. Marine Corps, and other Federal agencies. The CHS-5 contract averages approximately 315 contract actions annually.

CHS provides technical support, warranty support, system design, and end-of-life and configuration management services to ensure interoperability and integration of hardware throughout the computing infrastructure. CHS continuously analyzes and tracks hardware from cradle to grave; from emerging technology until end of life. The program conducts hardware evaluations that facilitate and simplify the selection of common hardware solutions across numerous Army programs, agencies, Joint Services, and other Federal Agencies including: Mission Command; Tactical Network; Tactical Radios; Intelligence Systems and Analytics; Aviation Systems; Counter Rocket, Artillery, Mortar; Communication Electronics Command; Combat Capabilities Development Command (CCDC), Army National Guard and Reserves, Navy, Air Force, Marines, the Federal Bureau of Investigation, among others. CHS rapidly procures common hardware configurations across the Capabilities Sets, the sustainment community, and tactical programs that enable the continuous modernization in support of all four Army Network Modernization Lines of Effort and Network CFT requirements. CHS logistical services include the ability to add worldwide, 72-hour turn-around repair through strategically located support centers for tactical military units. These support centers provide tailorable supply chain and cybersecurity measures, customizable warranty management, maintenance and failure rate reporting, and technical support services to support specific Army program requirements.

CHS is a model for modern acquisition strategy that strengthens the U.S. cybersecurity supply chain and manages risk by providing hardware solutions including servers, storage, clients, networking devices, tactical radios, ruggedized platforms, hand-held end devices, operational transit cases, installation kits, and peripheral devices procured from a mix of small and large businesses. CHS partners with the CECOM Integrated Logistics Support Center (ILSC) to develop a model for sustaining COTS IT using the Standard Army Supply System. CHS maintains a Public-Private Partnership (P3) with Tobyhanna Army Depot (TYAD) in order to leverage the innovation, resources and leadership skills of both TYAD and CHS in order to provide the best value to the taxpayer while delivering the best capability to the Soldier.

CHS supports Better Buying Power (BBP) initiatives by through volume discounting, economies of scale, the elimination of duplication of effort, reduced barriers to entry, price breaks, streamlined processes, reduced cycle times, and centralized contracting.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** 323 / *Common Hardware Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Acquisition Support ***Description:*** Funding is provided for the following effort. ***FY 2022 Plans:*** Will continue acquisition support for CHS and customer programs. CHS rapidly procures common hardware configurations across all four Network Modernization Lines of Effort and Network Cross Functional Team (CFT). Supports tactical programs that enable the continuous modernization of a unified network requirements, the sustainment community, and DoD and Federal Government customers. Additional efforts include pre-award activities for the 6th generation CHS contract. PMO costs will be covered by OMA funding. ***FY 2023 Plans:*** Will continue acquisition support for CHS and customer programs. CHS rapidly procures common hardware configurations across all four Network Modernization Lines of Effort, Capability Sets, and Network Cross Functional Team (CFT). Supports tactical programs that enable the continuous modernization of a unified network requirements, the sustainment community, and DoD and Federal Government customers. PMO costs will be covered by OMA funding. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The increase from FY22 to FY23 covers the standard inflation and forecasted contract workload.	2.552	2.229	2.809
Title: Technical and Test Support ***Description:*** Funding is provided for the following effort. ***FY 2022 Plans:*** CHS provides technical support, environmental and survivability testing, system design, end of life/configuration management, and strengthens cyber security/supply chain management across Army tactical programs to ensure interoperability and integration of hardware throughout the computing infrastructure. CHS conducts hardware evaluations that facilitate and simplify the selection of common hardware solutions across numerous Army programs and agencies. ***FY 2023 Plans:*** CHS provides technical support, environmental and survivability testing, system design, end of life/configuration management, and strengthens cyber security/supply chain management across Army tactical programs to ensure interoperability and integration of hardware throughout the computing infrastructure. CHS conducts hardware evaluations that facilitate and simplify the selection of common hardware solutions across numerous Army programs and agencies. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	1.705	1.607	1.700

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** 323 / *Common Hardware Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
The increase from FY22 to FY23 is inflation.			
Title: Logistical Service Support ***Description:*** Funding is provided for the following effort. ***FY 2022 Plans:*** CHS logistical services include worldwide 72-hour turnaround repair through strategically located support centers for tactical military units, tailorable supply chain and cybersecurity measures, manages customizable warranty, maintenance and failure rate reporting, and technical support services to support specific Army program requirements. ***FY 2023 Plans:*** CHS logistical services include worldwide support with a 72-hour turnaround for repairs, tailorable supply chain and cybersecurity measures, manages customizable warranty, maintenance and failure rate reporting, and technical support services to support specific Army program requirements. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The increase from FY22 to FY23 is inflation.	0.359	0.386	0.408
Title: Contract Support Services ***Description:*** Funding is provided for the following effort. ***FY 2022 Plans:*** Contract Support Services are required to provide continuing expedited acquisition support for customer procurements. ***FY 2023 Plans:*** Contract Support Services are required to provide continuing expedited acquisition support for customer procurements. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The increase from FY22 to FY23 is inflation.	0.200	0.202	0.204
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:***	-	0.168	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** 323 / *Common Hardware Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding transferred in accordance with Title 15 USC 638			
Accomplishments/Planned Programs Subtotals	4.816	4.592	5.121

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

CHS is currently executing an approved acquisition strategy to facilitate the procurement of commercial IT through a single step, full and open competition contract. The fifth generation of the contract (CHS-5) was awarded on 23 AUG 2018; 5 years/IDIQ. A single prime vendor was selected as the program integrator. The CHS-5 contract provides seamless, rapid, and consolidated procurement of commercial IT, customizable sustainment strategies, non-personal services, and continuous technology upgrades to support tactical programs fielding schedules, configuration management, and ruggedization.

Since the inception of the CHS-5 contract, there have been 275 technology insertions, 806 delivery orders, 98 task orders, and 292,422 items delivered to 482 unique customers. Additionally, since its inception, the CHS-5 contract yielded a cost avoidance of $277.8 million to its customers. FY21 yielded 345 actions awarded (74 TIs, 231 DOs, and 40 TOs) for a total of $375 million.

The sixth generation CHS contract (CHS-6) is in development. Extensive market research has been conducted to identify the acquisition strategy for this effort. The CHS PMO holds frequent and open discussions with industry to ensure the requirements are clearly understood and feedback is from hardware developers and manufacturers is taken into consideration to maximize competition. The CHS PMO is exploring innovative ways to shape the CHS-6 contract to allow all Federal Agencies with tactical requirements to achieve their missions and strategic initiatives by providing a rapid and streamlined process and access to critical Commercial Information Technology. The CHS-6 contract award is estimated to be 3QFY23.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) 323 / *Common Hardware Systems*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO Support	Various	Various : Various	0.226	0.182	Jan 2021	-		-		-		-	0.000	0.408	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.168		-		-		-	0.000	0.168	-
		Subtotal	0.226	0.182		0.168		-		-		-	0.000	0.576	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Support	C/FP	Various : Various	8.699	2.370	Dec 2020	2.229	Dec 2021	2.809	Dec 2022	-		2.809	Continuing	Continuing	Continuing
Logistical Service Support	C/FP	Various : Various	1.401	0.359	Dec 2020	0.386	Dec 2021	0.408	Dec 2022	-		0.408	Continuing	Continuing	Continuing
Technical & Test Support	C/FP	Various : Various	4.657	1.705	Dec 2020	1.607	Dec 2021	1.700	Dec 2022	-		1.700	Continuing	Continuing	Continuing
		Subtotal	14.757	4.434		4.222		4.917		-		4.917	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Support Services	SS/CR	APG, MD : APG, MD	-	0.200	Dec 2020	0.202	Dec 2021	0.204	Dec 2022	-		0.204	Continuing	Continuing	Continuing
		Subtotal	-	0.200		0.202		0.204		-		0.204	Continuing	Continuing	N/A

	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.983	4.816		4.592		5.121		-		5.121	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** 323 / *Common Hardware Systems*

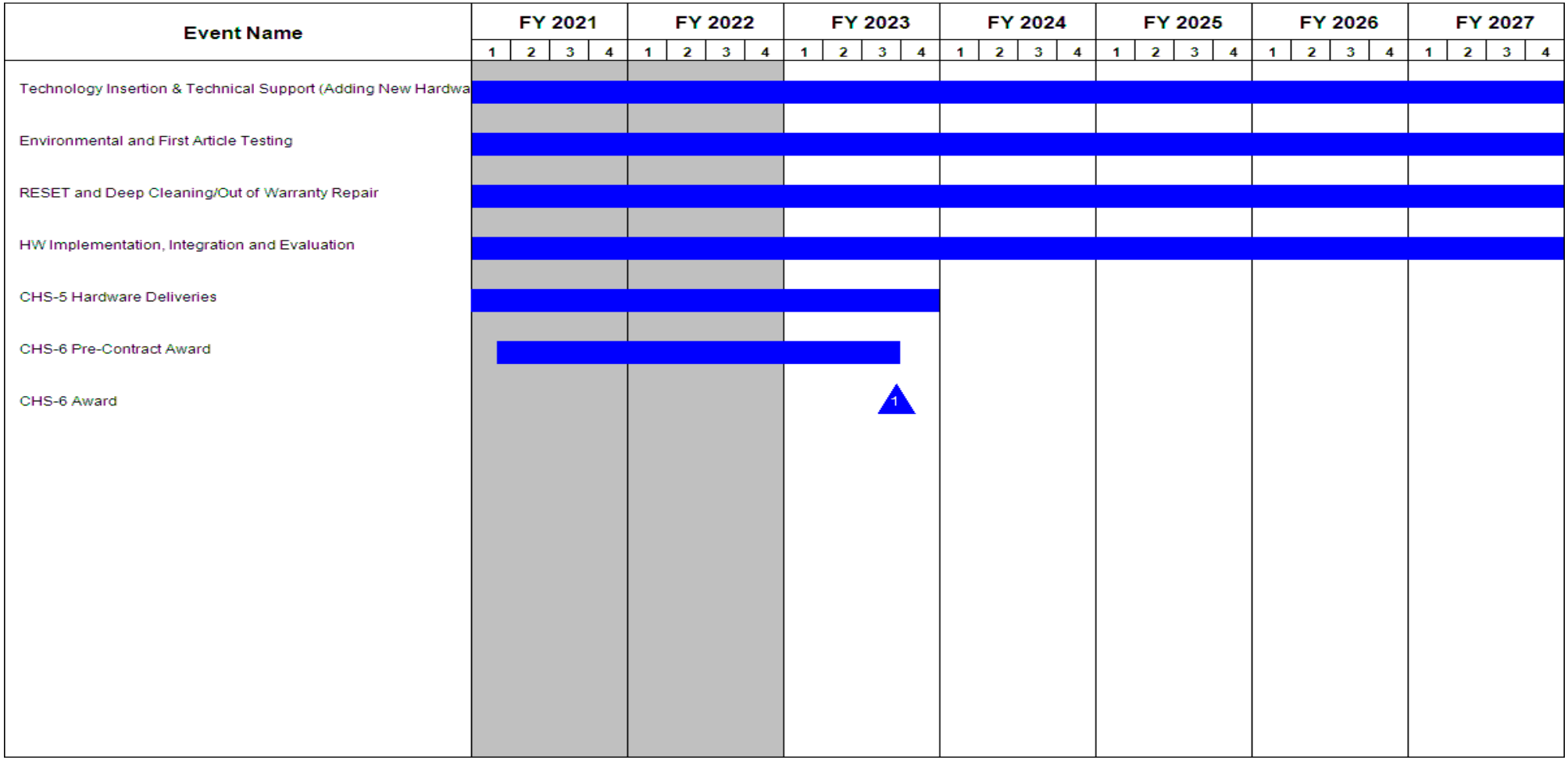

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** 323 / *Common Hardware Systems*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Technology Insertion & Technical Support (Adding New Hardware to Contract)	1	2007	4	2027
Environmental and First Article Testing	1	2006	4	2027
RESET and Deep Cleaning/Out of Warranty Repair	1	2006	4	2027
HW Implementation, Integration and Evaluation	1	2006	4	2027
CHS-5 Hardware Deliveries	4	2018	4	2023
CHS-6 Pre-Contract Award	1	2020	3	2023
CHS-6 Award	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
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COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
C29: *Centralized Technical Support Facility (CTSF)*	-	4.981	7.345	12.539	-	12.539	4.473	4.573	4.678	4.781	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project C29, The Centralized Technical Support Facility (CTSF): The CTSF is the Army's premier test and certification facility for System of Systems interoperability, functioning as CIO/G6's designated independent test agent and Land/WarNet/Mission Command (LWN/MC) configuration manager. The Central Technical Support Facility's (CTSF) directed mission is to perform Army Interoperability Certification (AIC) testing and configuration management for all 23 operational through tactical level Command, Computing, Control, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) systems, Mission and Space systems, Aviation systems and other individual, family, and system of systems, applications, and hardware prior to release to the field. The CTSF accomplishes this through the enforcement of a standards based architecture while supporting the development and implementation of an integrated computing infrastructure and a converged network. The CTSF provides validated test data to the Department of the Army and Joint agencies to accredit interoperability certifications. The distributed test environment of the CTSF is accomplished through the Federation of Net-centric Sites (FaNS) construct. This FaNS construct addresses distributed integration development and testing using the core infrastructure of the CTSF to harness Army and Joint expertise/resources. Through these federated resources, the CTSF executes or supports interoperability development, integration and certification testing of the systems and system of systems in the Warfighter Mission Area, to include Network Evaluation spinouts, as they become part of the Army's LandWarNet. The cited work is consistent with Strategic Planning Guidance and the Army Modernization and Strategy Plan.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Army Interoperability Certification (AIC) Testing	2.930	1.888	3.514
Description: Conduct Army Interoperability Certification (AIC), planning/coordination/scheduling/ and reporting of Common Operating Environment (COE) and software block testing (local and distributed). Additionally, provide stakeholders data collection/data analysis/data dissemination/simulation/stimulation verification/validation in support of Army geospatial interoperability certification, system of system cybersecurity posture assessment and individual system cybersecurity policy adjustment. Manage the set-up, configuration, integration, operations and maintenance of the LandWarNet/Mission Command (LWN/MC) systems within the CTSF test environments. Function as the HQDA G-6's Independent Test Agent for Program Managers of LWN/MC systems that have an Acquisition Life Cycle requirement for testing interoperability of software and associated hardware prior to fielding to the Warfighter. Act as the central control node to synchronize the HQDA G-6 accredited Federation of Net-centric Sites (FaNS) distributed AIC testing environment. Report the results of Army Interoperability Certification tests to the HQDA G-6, PM, TRADOC and AFC communities.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C29 / *Centralized Technical Support Facility (CTSF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Continue SWB11-12 test planning, test case development, test environment architecture set-up, for interoperability testing, Geospatial Information Systems (GIS) interoperability assessment, cybersecurity posture adjustment and assessment activities for the systems that comprise the Army?s tactical software baselines. Conduct COE v3.0 planning, test case development and architecture set-up to support the technical standards update timelines for the Army?s tactical software baseline. Conduct interoperability testing for the SWB11-12 and COE v3.0 systems that comprise the LWN/MC baseline to ensure the tactical integrated computing infrastructure is interoperable in a System of Systems (SoS) environment and to enable the HQDA G-6 to enforce a standards based architecture. Complete the virtualization of the technical environment and test methodology needed to virtualize the tactical network and the tactical systems required to support AIC testing. Partner with ATEC and AFC to leverage the CTSF assets in support of PMs? Operational Test activities. ***FY 2023 Plans:*** Continue SWB11-12 test planning, test case development, test environment architecture set-up, for interoperability testing, Geospatial Information Systems (GIS) interoperability assessment, cybersecurity posture adjustment and assessment activities for the systems that comprise the Army?s tactical software baselines. Conduct COE v3.0 planning, test case development and architecture set-up to support the technical standards update timelines for the Army?s tactical software baseline. Conduct interoperability testing for the SWB11-12 and COE v3.0 systems that comprise the LWN/MC baseline to ensure the tactical integrated computing infrastructure is interoperable in a System of Systems (SoS) environment and to enable the HQDA G-6 to enforce a standards based architecture. Continue the virtualization build out and scale up of the test environment to support AIC testing. Partner with ATEC and AFC to leverage the CTSF assets in support of PMs? Operational Test activities. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase is due to additional need for subject matter expertise personnel salaries related to the transitioning to a cloud based testing capability. Will include additional travel, training, software development and software licenses.			
Title: Engineering Services	0.162	0.195	0.199
Description: Provide network engineering support to establish and maintain tactical architectures on the CTSF test floors and to deploying/fielded units at training centers around the world (JRTC, NTC, JMRC). System engineering support provides hardware virtualization, Army End Point Security System (AESS) support, system validation and integration support to numerous PMs on the integration and risk reduction labs, and assists Army programs with interoperability assessments and AIC rehearsal. Modify and merge army data products for CTSF test architectures. Continuously seek emerging markets. Develop/Maintain Applications for CTSF Configuration Tracking System Version 4 (CMTSv4). ***FY 2022 Plans:*** Provide Network support for integration and test floors, network support to fielded units, and systems engineering and analysis support to system of systems integration activities. Enhance the Security posture of the CTSF by ensuring the latest Information			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C29 / *Centralized Technical Support Facility (CTSF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Assurance Vulnerability Alerts (IAVAs) and Security Technical Implementation Guides (STIGs) are implemented as required by Risk Management Framework (RMF). Integrate and implement Army End Point Security System (AESS) technology, assist PMs in the development of AESS policies. Plan and conduct engineering evaluations for AIC testing and data collection in the Joint Warfighter Assessment (JWA)/Capability Integration Evaluation (CIE) to leverage the operational environment and JWA/ CIE resources. Work with Network Cross Functional Team on Network modernization and Integrated Tactical Network (ITN) design and testing. Assist integration and test architectures to include Program of Record (POR) and non-POR Soldier radio waveforms to provide PMs and Material Developers testing in realistic environments. Support Army Test and Evaluation Command (ATEC) and Army Futures Command interoperability assessments of Cross-Functional Team (CFT) solutions. Continue efforts to implement an AIC Secret Releasable test environment network that integrates Army and the Unified Action Partners (UAP). ***FY 2023 Plans:*** Provide Network support for integration and test floors, network support to fielded units, and systems engineering and analysis support to system of systems integration activities. Enhance the Security posture of the CTSF by ensuring the latest Information Assurance Vulnerability Alerts (IAVAs) and Security Technical Implementation Guides (STIGs) are implemented as required by Risk Management Framework (RMF). Integrate and implement Army End Point Security System (AESS) technology, assist PMs in the development of AESS policies. Plan and conduct engineering evaluations for AIC testing and data collection in the Joint Warfighter Assessment (JWA)/Capability Integration Evaluation (CIE) to leverage the operational environment and JWA/ CIE resources. Work with Network Cross Functional Team on Network modernization and Integrated Tactical Network (ITN) design and testing. Assist integration and test architectures to include Program of Record (POR) and non-POR Soldier radio waveforms to provide PMs and Material Developers testing in realistic environments. Support Army Test and Evaluation Command (ATEC) and Army Futures Command interoperability assessments of Cross-Functional Team (CFT) solutions. Continue efforts to implement an AIC Secret Releasable test environment network that integrates Army and the Unified Action Partners (UAP). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to anticipated standard inflation rate of 2% for CEAC rate for 1 AcqDemo work year.			
Title: Configuration Management ***Description:*** As the CTSF Configuration Management Office, provide CM functional and physical configuration management and change management to the CTSF Army Interoperability Certification test floor environment. Additionally, as the Army Configuration Management Office (ACMO), establish and maintain oversight control of the Army Master Library for the Army Interoperability Certified Fielded Baseline (AICFB). Archive system software and data products, correlated with their associated documentation, for the Army LandWarNet Mission Command Baseline (ALWNMCB), a subset of the AICFB. Establish and maintain the configuration and change management to the AICFB and the ALWNMCB for Lifecycle Software Management (LCSM). Provide support to the Army Staff (ARSTAF), Material Developers (MATDEV), Project Managers (PM), and System Owners (SO) through the orderly management of product configuration information and product change management (ChM),	1.205	1.432	1.914

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
which enables capability revisions, improved reliability and maintainability, and extended life-cycle. Maintain and improve the Configuration Management Tracking System version 3 (CMTSIII), the Army?s authoritative database management system (DBMS) for configuration management (CM) of the systems comprising Coalition Interoperability Assurance and Validation (CIAV), and the Warfighter Mission and Business Mission Areas of the Army Information Technology (IT) portfolio. Assist the HQDA G-6 conduct accreditation inspections and training for Federation of Net-centric Sites (FaNS) locations. ***FY 2022 Plans:*** Provide CM functional and physical configuration management and change management to the CTSF Army Interoperability Certification test floor environment. Provide CM functional and physical configuration management and change management to the AICFB, to include archiving the required system software, data products and documentation, while correlating the relevant data within the CMTSIII DBMS for visibility to users Army wide. Provide baseline reconciliation to the four quarterly CIO/G6 AICFB reports, identifying to commanders and their G-3/G-6 staff the Army?s AIC certified, Interoperability Capability and Limitations assessed, AIC waivered, and AIC exempted system software that is authorized to connect to the Army?s network. Assist the HQDA G-6 in conducting accreditation inspections and training for Federation of Net-centric Sites (FaNS) locations. ***FY 2023 Plans:*** Provide CM functional and physical configuration management and change management to the CTSF Army Interoperability Certification test floor environment. Provide CM functional and physical configuration management and change management to the AICFB, to include archiving the required system software, data products and documentation, while correlating the relevant data within the CMTSIII DBMS for visibility to users Army wide. Provide baseline reconciliation to the four quarterly HQDA G6 AICFB reports, identifying to commanders and their G-3/G-6 staff the Army?s AIC certified, Interoperability Capability and Limitations assessed, AIC waivered, and AIC exempted system software that is authorized to connect to the Army?s network. Assist the HQDA G-6 AICFB in conducting accreditation inspections and training for Federation of Net-centric Sites (FaNS) locations. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to equipment refresh due to end of life for multiple physical media replication systems and payroll increases.			
Title: Management Operations/Program Office ***Description:*** Provide management operations consisting of planning, programming and executing funds; planning and programming for required personnel; planning, programming and executing contracts supporting AIC testing processes; identifying reimbursable tests and collecting/allocating appropriate funds; planning and programming logistics activities, managing/controlling/documenting physical assets and inventories; and perform oversight and coordination of physical security with hosting installation. ***FY 2022 Plans:***	0.448	0.406	0.387

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Program and execute funding. Plan and program manpower, identify contracting requirements and develop strategy for implementation in conjunction with CECOM Acquisition Center. Track testing schedule, prepare/coordinate/track customer funding for AIC testing activities and infrastructure support. Continue to provide field support coordination for unit training and exercises upon request. Maintain existing infrastructure; continue to enhance physical security, access control, force protection, Continuity Of Operations (COOP) and Emergency Action Plan (EAP) activities and exercises. Continue inventory accountability programs and asset control. ***FY 2023 Plans:*** Program and execute funding. Plan and program manpower, identify contracting requirements and develop strategy for implementation in conjunction with CECOM Acquisition Center. Track testing schedule, prepare/coordinate/track customer funding for AIC testing activities and infrastructure support. Continue to provide field support coordination for unit training and exercises upon request. Maintain existing infrastructure; continue to enhance physical security, access control, force protection, Continuity Of Operations (COOP) and Emergency Action Plan (EAP) activities and exercises. Continue inventory accountability programs and asset control. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease due to anticipated efficiencies related to modernization effort that is anticipated to reduce some operational costs.			
Title: Modernization ***Description:*** Technical modernization FY22-23 effort for Army Interoperability Certification (AIC) to enhance CTSF testing capabilities. Estimated cost of modernization is approximately $6M in investment with virtualization efforts and test automation. Funding provided for hardware & software integration for virtualization and automation, software licensing, and labor and other supporting integration efforts. ***FY 2022 Plans:*** Implementation of the automation and virtualization efforts to support the technical modernization of AIC testing. Funding provided for purchase of hardware & software integration, virtualization and automation, software licensing and labor and other integration efforts. ***FY 2023 Plans:*** Continuation of the automation and virtualization efforts to support the technical modernization of AIC testing. Funding provided for purchase of hardware & software integration, virtualization and automation, software licensing and labor and other integration efforts. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	0.236	3.156	6.525

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Increase is due to anticipated finalization cost to complete modernization effort. The planned modernization efforts for FY23 includes developing a cloud based Army Interoperability Certification (AIC) test capability. Will complete automation test and mission thread processes and virtualization infrastructure efforts, and data storage / reuse efforts in FY23. These combined modernization activities must be complete in FY23 in order to support the Army?s transition to the DevSecOps environment and the ability to validate the software interoperability within DevSecOps environment.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.268	-
Accomplishments/Planned Programs Subtotals	4.981	7.345	12.539

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Transition from executing a single test event at a time to multiple simultaneous test events using new universal mission threads, providing speed and efficiency to the test/acquisition timeline. Execute system of systems interoperability testing and certification through the use of Government and Systems Engineering and Technical Analysis (SETA) contract personnel experienced in product development and interoperability testing. Testing and certification occurs in a cyclical fashion, with an expectation of an annual Software Block/Capability Set test followed with cyclical multiple test events to ensure integrity of software baselines to the Warfighter. Engineering Services provides strategic integration of software into a system of systems/family of systems environment to support interoperability testing. Establish and maintain Configuration Management and version control of the Army's Interoperable Battle Command LandWarNet Baseline. Distributed testing capability uses local assets and leverages other federated test facilities to create synergy and realize efficiencies.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.268		-		-		-	0.000	0.268	-
		Subtotal	-	-		0.268		-		-		-	0.000	0.268	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MITRE Corp	FFRDC	Engineering Services : Fort Hood, TX	17.178	-		-		-		-		-	0.000	17.178	-
In-House	Allot	Engineering Services : Fort Hood, TX	2.548	-		-		-		-		-	0.000	2.548	-
		Subtotal	19.726	-		-		-		-		-	0.000	19.726	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CECOM Matrix	Allot	Program and Budget Analysis Support : Fort Hood, TX/ Aberdeen Proving Grounds, MD	5.705	0.142		0.145		0.148		-		0.148	0.000	6.140	-
In-House Support	Allot	Management Operations, Logistics Support : Fort Hood, TX	9.928	-		-		-		-		-	0.000	9.928	-
ISSA/Training/TDY	Allot	Site Support Activities : Fort Hood, TX	0.787	0.193		0.337		0.165		-		0.165	0.000	1.482	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Supplies	C/UCA	Management Operations, Logistics Support : Fort Hood, TX	1.515	0.113		0.098		0.074		-		0.074	0.000	1.800	-
Moving Costs	Allot	Management Operations, Logistics Support : Fort Hood, TX	0.001	0.001		0.001		-		-		-	0.000	0.003	-
		Subtotal	17.936	0.449		0.581		0.387		-		0.387	0.000	19.353	N/A

Remarks

Under "open-the-door" cost model, all In-house support efforts are included under Test & Evaluation.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CECOM RS3	C/CPFF	Test, Configuration Management : Fort Hood, TX	18.744	1.836	Sep 2021	0.473	Apr 2022	2.150	Apr 2023	-		2.150	0.000	23.203	-
CECOM GSA BMO SB SITE SUPPORT SERVICES	C/T&M	Facilities, Maintenance, Security : Fort Hood, TX	12.671	1.094	Sep 2021	1.415	Mar 2022	1.364	Apr 2023	-		1.364	0.000	16.544	-
ISSA	MIPR	Utilities & NEC Support : Fort Hood, TX	4.945	-		-		-		-		-	0.000	4.945	-
ARL Matrix	MIPR	Test : Fort Hood, TX	6.374	-		-		-		-		-	0.000	6.374	-
In-House Support	Allot	Test : Fort Hood,TX	12.601	1.359		1.451		1.675		-		1.675	0.000	17.086	-
Equipment/Instrumentation	C/UCA	Test Equipment Infrastructure : Fort Hood, TX	3.197	0.007		0.001		0.438		-		0.438	0.000	3.643	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modernization	MIPR	Test, Configuration Management : Fort Hood, TX	1.092	0.236	Feb 2021	3.156		6.525		-		6.525	0.000	11.009	-
		Subtotal	59.624	4.532		6.496		12.152		-		12.152	0.000	82.804	N/A

Remarks

ARL Matrix effort became a "reimbursable" effort under Open-the-Door cost model effective in FY17; no longer "Direct" funded.
ISSA no longer funded at CTSF level.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	97.286	4.981		7.345		12.539		-		12.539	0.000	122.151	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
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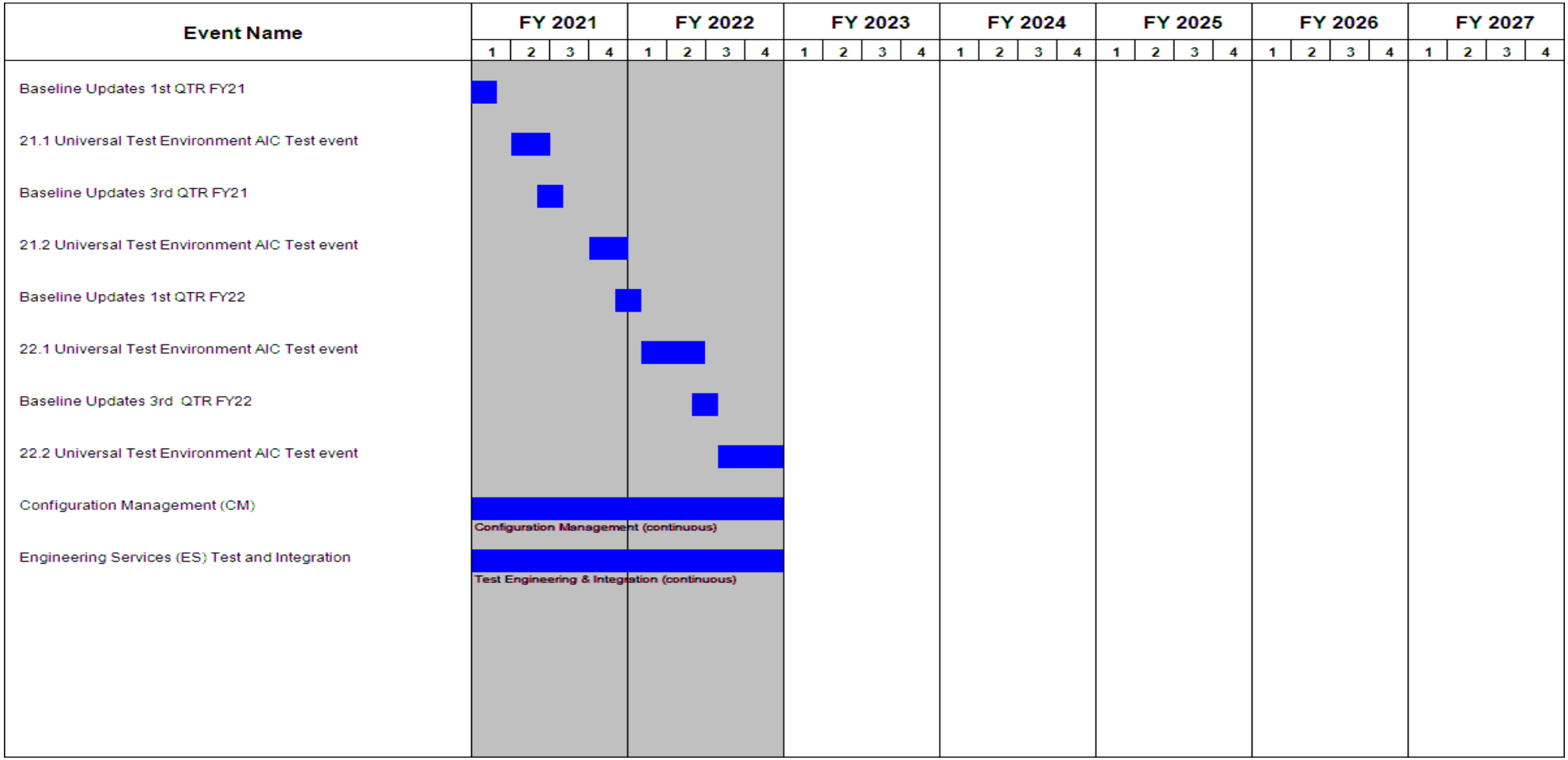

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
20.1 Universal Test Environment AIC Test event	2	2020	2	2020
Baseline Updates 3rd QTR FY20	2	2020	3	2020
20.2 Universal Test Environment AIC Test event	4	2020	4	2020
Baseline Updates 1st QTR FY21	4	2020	1	2021
21.1 Universal Test Environment AIC Test event	2	2021	2	2021
Baseline Updates 3rd QTR FY21	2	2021	3	2021
21.2 Universal Test Environment AIC Test event	4	2021	4	2021
Baseline Updates 1st QTR FY22	4	2021	1	2022
22.1 Universal Test Environment AIC Test event	1	2022	2	2022
Baseline Updates 3rd QTR FY22	2	2022	3	2022
22.2 Universal Test Environment AIC Test event	3	2022	4	2022
Configuration Management (CM)	1	2019	4	2022
Engineering Services (ES) Test and Integration	1	2019	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
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COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
C34: *Army Tac C2 Sys Eng*	-	9.351	9.409	11.965	-	11.965	11.376	11.676	11.679	11.793	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of the Army Network Modernization Strategy Lines of Effort (LOEs) 1-4 (Unified Network, Common Operating Environment, Interoperability, and Command Post Mobility & Survivability). Project C34, Army Tactical Command and Control Systems Engineering supports the Army's Network Modernization Strategy and coordinates technical efforts across and outside of PEO Command, Control, Communications-Tactical (PEO C3T) to ensure integration with the current and future Mission Command Network. Project C34 provides technical support for programs aligned and in support of Network Cross Functional Team (N-CFT) LOEs 1 through 4 that inform the design and solutions with specific emphasis on the ability for the different efforts to be integrated and interoperable with one another. Efforts support Army Modernization priorities including Army Unified Network Plan, Multi-Domain Operations, Joint All Domain Command and Control (JADC2), Data Modernization and emerging data-centric requirements.

Project C34, Army Tactical Command and Control Systems Engineering: This project funds the PEO C3T System of Systems engineering and integration, experimentation, acquisition management, testing, fielding and sustainment support to ensure interoperability and affordability within the PEO C3T portfolio. The effort focuses on System-of-Systems (SoS) Engineering and Integration for the Mission Command Network with increased emphasis on immediate Warfighter needs as well as leveraging emerging technologies.

Fiscal Year 2023 will focus on the continued development, implementation and integration of the Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) network architectures. This includes maturing the technology enhancement roadmap for SoS capability evolution across the PEO C3T portfolio that incorporates Cross Functional Team initiatives; network integration support and design products for system validation experimentation and integration testing including N-CFT led activities; integration of tactical networked capabilities for all Mission Command Network systems and integration events; integration of tactical information assurance solutions and security measures for consistent cyber protection; and support to N-CFT evaluations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Developmental Test and Integration Test Support between Programs of Record (PORs) and platforms / Command Posts (CPs) to execute System-of-Systems (SoS) and Interoperability	1.399	1.979	1.894
Description: Funds support the following effort: ***FY 2022 Plans:*** Continue to mature/revise the design, configuration and establishment of the system of systems integration test infrastructure architecture and implementation. Continue to provide the infrastructure and support in conducting Integration testing and systems engineering for C3T systems, products, technical insertions, and systems under evaluation to ensure integration of capabilities			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
across the network. Develop integration testing tools designed to enhance DEVSECOPS implementation and more expeditious testing cycles. Expand infrastructure and support to establish and maintain an AIC FaNS facility. ***FY 2023 Plans:*** Continue to provide the infrastructure and support to conduct integration testing and systems engineering for C3T systems, products, technical insertions, and systems under evaluation, ensuring integration of capabilities across the network. Funds include sustainment of increased level of integration testing and required maintenance to support data-centric network design. Funds also include continued participation as part of the Army Interoperability Certification (AIC) Federated Net-centric Sites (FaNS) facility. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Cost decreases reflect adjustment to planned hardware procurement projections.			
Title: Conduct and Support System Interoperability Engineering and Development of System-of-Systems (SoS) Architectural Products ***Description:*** Funds support the following efforts: ***FY 2022 Plans:*** Within the PEO C3T portfolio and in conjunction with N-CFT activities, continue to assess Emerging Technologies, identify critical integrated test points, monitor developmental testing at integration points, develop architectural data processes and products, and facilitate the transition of Network capabilities to the warfighter. Provide technical support to exercises and demonstrations of Army modernization initiatives such as Mission Partner Environment SEC/REL implementation and AFC Project Convergence. ***FY 2023 Plans:*** Across the Army Unified Network and Mission Command applications within and external to PEO C3T, provide integration support for testing, exercises and experimentation. Identify critical integrated test points, monitor developmental testing at integration points, develop event architectural data processes and products, and facilitate the transition of Network capabilities to the warfighter. Provide technical support to exercises and demonstrations of Army modernization initiatives. Develop integration testing strategies designed to enhance Development Security Operations (DEVSECOPS) implementation and more expeditious testing cycles. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Cost increases reflect standard inflation associated with labor.	1.803	2.451	2.468
Title: Development and Implementation of Tactical Information Assurance (IA) ***Description:*** Funds support the following efforts:	0.273	0.286	1.284

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Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C34 / *Army Tac C2 Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2022 Plans: Will continue to implement ARCYBER, CIO/G6 and CYBERCOM guidance for execution of Information Assurance policies and procedures at the tactical level. Continue to document the current tactical IA network architecture with the goal of developing recommendations to eliminate inconsistencies/duplications, increasing the security posture, decreasing complexity of operations, and decreasing costs. Continue to plan and design security measures and IA requirements across the tactical network for future capabilities. ***FY 2023 Plans:*** Continue to implement ARCYBER, CIO, G6 and CYBERCOM guidance for execution of Cyber Security policies and procedures at the tactical level. Continue to document the current tactical network security architecture with the goal of developing recommendations to eliminate inconsistencies/duplications, increasing the security posture, decreasing complexity of operations, and decreasing costs. Support planning of tactical implementation of integrated security approaches for the Army Unified Network. This includes support for incorporation of DoD-driven Zero Trust principles. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase provides engineering tools and support in modernizing the integrated tactical security approaches.			
Title: Tactical Network Engineering ***Description:*** Funds support the following efforts:	0.803	-	-
Title: System of Systems (SoS) Engineering and Integration Evolution of the Network ***Description:*** Funds support the following efforts: ***FY 2022 Plans:*** In Conjunction with LOE and CFT efforts, continue to implement cross PEO System of Systems Engineering and Integration processes, analysis and S&T coordination to ensure successful development Engineering and Testing of current and future systems. Continue to develop streamlined processes to support AFC and ASA(ALT) OCSE SE strategy. Develop solutions to address technical configuration management challenges introduced by CS baselines and DEVSECOPS strategies. ***FY 2023 Plans:*** Continue technical implementation of cross-PEO System of Systems Engineering and Integration analysis and processes to ensure successful development and engineering of current and future systems for Unified Network. Includes SoS engineering design for capabilities planned to field in FY 2025 and FY 2027 to include Program of Record and emerging Network	1.728	0.950	1.812

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C34 / *Army Tac C2 Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Modernization technologies. Continue to deliver engineering products to support strategic decisions or address operational technical challenges. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Cost increase reflects increased planned analyses and Army Unified Network Plan implementation activities.			
Title: System of Systems Development ***Description:*** Funds support the following efforts: ***FY 2022 Plans:*** Continue to effectively develop technical implementation of overall System-of-Systems Engineering, Enterprise, and Integration efforts for the PEO C3T portfolio of technology and capability enhancement programs. Continue to conduct SoS engineering design for capabilities planned to field in FY 2023 and FY 2025 to include Program of Record and emerging LOE technologies. ***FY 2023 Plans:*** Continue to develop System-of-Systems Engineering tools, standards and interfaces to support DoD-driven initiatives. Tool development and implementation improves technical integration across the Army Unified Network. Tools also support integration of technical, logistics and business data for improved trade studies in support of programmatic decisions. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Cost increase from FY22 to FY23 covers the standard rate of inflation.	3.201	3.014	3.407
Title: Mission Command Network Synchronization and Integration Support ***Description:*** Funds are for the following effort: ***FY 2022 Plans:*** Continue the support of current force and the development of future force C5ISR across the tactical network to ensure all Assistant Secretary of the Army (Acquisition, Logistics & Technology) (ASA(ALT)) programs are synchronized and redundancies and overlapping capabilities are reduced across the network and in synchronization with Army Modernization priorities and Cross Functional Team activities. ***FY 2023 Plans:*** Continue the support of current force and the development of future force C5ISR across the tactical network to ensure all Assistant Secretary of the Army (Acquisition, Logistics & Technology) (ASA(ALT)) programs are synchronized and redundancies and overlapping capabilities are reduced across the network and in synchronization with Army Modernization priorities and Cross Functional Team activities. Develop effective engineering strategies to integrate tactical applications for use across the Mission Command network to include support to the Common Operating Environment Technical Authority. Continue to perform network	0.144	0.381	1.100

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C34 / *Army Tac C2 Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
planning and integration activities across all cross-domain system-of-systems future capabilities and technologies. Develop or support development of networking documentation and standards identification that defines integration of evolving Capability Set systems. Provide technical support to exercises and demonstrations of Army modernization initiatives such as Mission Partner Environment SEC/REL implementation and Army Futures Command (AFC) Project Convergence. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increased cost covers additional engineering support for other CFT-led Modernization efforts and for exercises/experimentation driving toward Joint All Domain Command and Control (JADC2).			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.348	-
Accomplishments/Planned Programs Subtotals	9.351	9.409	11.965

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Not applicable for this item.

D. Acquisition Strategy

This project provides the technical and programmatic disciplines required for systems engineering and integration, experimentation, acquisition management, testing, interoperability, support to fielding and sustainment. It will focus on System-of-Systems (SoS) Systems Engineering and Integration for the tactical network with increased emphasis on immediate Warfighter needs as well as leveraging emerging technologies. Efforts align to support the acquisition strategies of the programs that must connect to the network.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) C34 / *Army Tac C2 Sys Eng*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.348		-		-		-	0.000	0.348	-
		Subtotal	-	-		0.348		-		-		-	0.000	0.348	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network Synchronization	C/CPFF	Bowhead : APG MD	6.600	3.907	Nov 2020	0.381	Nov 2021	1.794	Nov 2022	-		1.794	Continuing	Continuing	Continuing
System of Systems Development	Various	Various : APG, MD	4.800	0.790	Oct 2020	3.014	Oct 2021	3.279	Oct 2022	-		3.279	Continuing	Continuing	Continuing
System of System Architectures, Engineering, and Integration	SS/FP	MITRE : Aberdeen Proving Ground, MD/ Eatontown, NJ	107.229	4.172	Oct 2020	1.224	Nov 2021	1.245	Oct 2022	-		1.245	Continuing	Continuing	Continuing
Support System Interoperability Engineering	C/CPFF	CACI : APG, MD	-	-		1.227	Apr 2022	1.792	Nov 2022	-		1.792	Continuing	Continuing	Continuing
Dev Test and Integ Support between PORs/ Platforms	C/Various	Various : Various	-	-		1.979	Mar 2022	1.894	Nov 2022	-		1.894	Continuing	Continuing	Continuing
Development and Implementation of Tactical Information Assurance (IA)	TBD	Various : Various	-	-		0.286	Feb 2022	1.284	Oct 2022	-		1.284	Continuing	Continuing	Continuing
		Subtotal	118.629	8.869		8.111		11.288		-		11.288	Continuing	Continuing	N/A

Remarks

Product Development categories have been expanded to reflect alignment to FY23 planned program dollar categories.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) C34 / *Army Tac C2 Sys Eng*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration Evolution of the Network	MIPR	MATRIX - C5ISR : Aberdeen Proving Ground, MD	14.464	0.482		0.950	Nov 2021	0.677	Nov 2022	-		0.677	0.000	16.573	Continuing
		Subtotal	14.464	0.482		0.950		0.677		-		0.677	0.000	16.573	N/A

Remarks

Support costs capture Matrix labor associated with Integration and Test Support among PORs.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	133.093	9.351		9.409		11.965		-		11.965	Continuing	Continuing	N/A

Remarks

Total FY23 funding increase over FY22 Funding (1) provides engineering tools and support in modernizing the integrated tactical security approaches, (2) drives network design to change from network-centric to data-centric affecting application, networking, and security implementation across Army Unified Network Plan implementation activities, and (3) provides additional engineering support for other CFT-led Modernization efforts and for exercises/experimentation driving toward Joint All Domain Command and Control (JADC2).

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C34 / *Army Tac C2 Sys Eng*

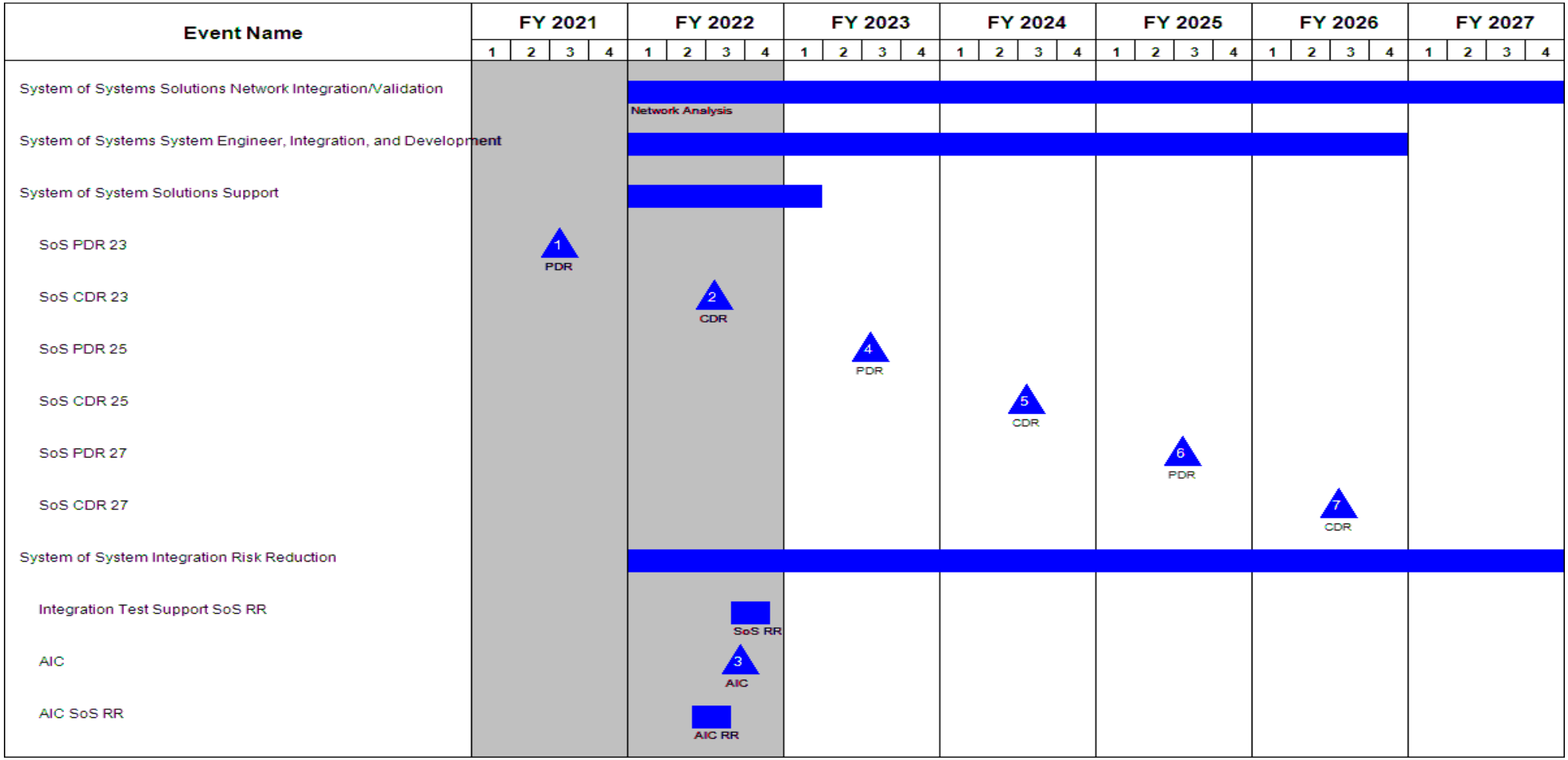

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** C34 / *Army Tac C2 Sys Eng*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
System of Systems Solutions Network Integration/Validation	1	2022	4	2027
System of Systems System Engineer, Integration, and Development	1	2022	4	2026
System of System Solutions Support	1	2022	1	2023
SoS PDR 23	3	2021	3	2021
SoS CDR 23	3	2022	3	2022
SoS PDR 25	3	2023	3	2023
SoS CDR 25	3	2024	3	2024
SoS PDR 27	3	2025	3	2025
SoS CDR 27	3	2026	3	2026
System of System Integration Risk Reduction	1	2022	4	2027
Integration Test Support SoS RR	3	2022	4	2022
AIC	3	2022	3	2022
AIC SoS RR	2	2022	3	2022

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
EJ4: *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*	-	26.485	35.117	28.070	-	28.070	28.173	28.258	28.268	28.543	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Cross Functional Team. Efforts are aligned with the Army Network Modernization Strategy Line of Effort (LOE) 2, Common Operating Environment (COE).

Command Post Computing Environment (CPCE) implements an integrated, interoperable, cyber-secure, software infrastructure that serves as the host for a unified set of multiple warfighting functional applications within the command post at echelons Battalion to Army Service Component Command (ASCC); eliminating "stove-piped" enduring systems, duplicative or redundant implementations, simplifying future application development efforts, and enhancing interoperability and data sharing across multiple echelons.

The CPCE software infrastructure and applications reside on Tactical Server Infrastructure (TSI) hardware and BCCS/TSI servers previously fielded under the TMC/ MCS program of record. CPCE/TSI provides the hardware infrastructure to host capabilities, such as movement and maneuver applications, network enabling tools (i.e. Cyber Situational Understanding and Tactical Defensive Cyber Operation Infrastructure) and warfighting function applications. This software infrastructure provides the Army's Common Operating Picture (COP) solution, allowing interoperability between command posts, mounted platforms, and dismounted handheld devices while supporting collaboration with Joint and Unified Action partners. CPCE provides common look and feel (user interface), common data strategy, interoperable tactical messaging/ chat, and essential warfighting capabilities.

FY 2023 funding will extend the capabilities of the CPCE software infrastructure, and support Capability Set 23 (CS23) by bringing additional warfighting function capabilities, and is focused primarily on the future Data Fabric and the convergence of existing command post capabilities managed by Army programs of record. Improvements to the CPCE infrastructure to accommodate enduring system integration will be prioritized. Additionally, as part of Increment 2 and CS23, multiple Science and Technology efforts will reach Technology Readiness Level 6 and will be integrated and tested for inclusion into the CPCE architecture. Continued RDTE efforts will include ongoing development in the area of data fabric, including ingress/egress, persistence (storage), access control and management, and querying.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: SW Dev - Core Infrastructure	17.583	28.014	19.366
Description: Provides the core software infrastructure that enables the convergence of warfighting capabilities in the command posts. The core infrastructure development provides the platform upon which applications in the areas of Sustainment, Fires, Intelligence, and Aviation can be hosted and integrated. Primary software development efforts include ongoing enhancement			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
of the Common Operating Picture (COP), more robust Geospatial map capabilities, improved user interface improved system administration tools and backwards compatibility to previously fielded enduring systems. Software development efforts focus on designing the system to reduce the training burden on the Soldier, and the creation of an Integrated Software Development Kit (ISDK) that allows external developers the ability to integrate new capabilities without rebuilding common components. Integral to SW development of the core infrastructure is a Data Fabric that will enable future advanced decision making tools based on artificial intelligence and machine learning. ***FY 2022 Plans:*** For FY22, CPCE Increment 2 efforts focus on warfighting function / legacy system convergence and the implementation and integration of emerging Science & Technology (S&T) efforts. Convergence during FY22 will focus on Intel, Fires, and Aviation capabilities. Specific S&T efforts include Geospatially-Enabled Operational Design (GEOD), Automated Analytics for the Operational Environment (A2OE), Project Rainmaker, and Information Trust. Additionally ongoing development of the movement and maneuver functions and core infrastructure improvements continue in support of Capability Set 23. This includes continued integration of the latest commercial software solutions and updates. ***FY 2023 Plans:*** CPCE Increment 2 efforts will focus on warfighting function / enduring system convergence, the implementation of Data Fabric, the integration of Science & Technology (S&T) efforts, and ensuring that CPCE software is cloud-enabled to enhance SW deployment, training, and operational system use. Convergence during FY23 will include the addition of Sustainment capabilities. Continued maturation of S&T efforts to include Geospatially-Enabled Operational Design (GEOD), Automated Analytics for the Operational Environment (A2OE), Rainmaker, and convergence of Intelligence Applications and Engineering Application (ENFIRE). Core infrastructure improvements will continue in support of Capability Set 23 and enable convergence. This includes continued integration of the latest commercial software solutions and updates, and improved collaboration tools. Increment 2 will conclude FY23 with an Operational Assessment and Deployment Decision and Increment 3 design efforts will begin.. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease commensurate with the planned scope of work to complete primary infrastructure efforts in FY23.			
Title: Hardware/Software Integration ***Description:*** Hardware / Software Integration within CPCE/TSI consists of research, development, and engineering efforts required to select, engineer, and field CPCE software on COTS hardware server and related components. The CPCE software resides on converged Tactical Server Infrastructure (TSI) server stacks, which host multiple software infrastructure components including Microsoft Exchange, SharePoint, Defensive Cyber Operations (DCO) tools, SQL databases, Active Directory, and others. This enterprise software is tightly-coupled with, and engineered for, specific TSI hardware using virtual machine (VM) technology and must serve as the basis for all other warfighting functions and mission command system software loaded on the	1.150	1.550	1.489

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
server. Proper deployment of the software in an appropriately designed virtual machine environment is critical to the success of the program. Goals for the virtual environment are reliability of software installation, ease of maintenance, and a robust set of system administrator tools. As external capabilities are converged onto the TSI environment, additional software components must be integrated on the servers. ***FY 2022 Plans:*** For FY22, complete the updates to the CPCE Increment 1 hardware and software integration efforts. Integration will include incorporating progressive updates to the core software infrastructure, convergence of map based planning services and the aviation mission planning system into the CPCE software infrastructure. CPCE Increment 2 agile development and convergence efforts are in full effect during FY22. Integration of warfighter applications into the CPCE software and/or direct inject into the TSI hardware will be accomplished during this FY and continue through FY23, in order to meet Army Network Modernization Strategy goals for LOE 2, and Common Operating Environment functions. ***FY 2023 Plans:*** HW/SW integration efforts will continue as the program will be conducting formal Operational Assessment of CPCE Increment 2, which will include multiple converging capabilities including data fabric, S&T technologies, and external warfighting functions. The TSI baseline for CPCE Increment 2 will be developed, including automated deployment of scripts and documentation. Integration of warfighter applications into the CPCE Increment 2 software and/or direct inject into the TSI hardware will be accomplished in FY23, in order to meet Army Network Modernization Strategy goals for Line of Effort 2, and Capability Set 23. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease commensurate with the planned scope of work to meet HW/SW integration requirements in FY23.			
Title: Test and Evaluation ***Description:*** Test and evaluation efforts include the planning and conduct of Command Post Computing Environment (CPCE) T&E event including Developmental Test (DT), System Software Acceptance Testing (SSAT), Integration Events, Risk Reduction Events, and the Integrated Test Strategy and Operational Assessments. ***FY 2022 Plans:*** CPCE/TSI will continue Developmental Testing (DT), System Software Acceptance Testing (SSAT), Integration Events, Risk Reduction Events, as part of the Integrated Test Strategy for the Increment 1 update, which is expected to be released in 4QFY22 to meet Army senior leaders? objectives of maintaining the latest software baseline in the field. ***FY 2023 Plans:***	5.418	1.790	5.270

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
CPCE/TSI will complete Developmental Testing (DT), and multiple Integration and Risk Reduction events in FY23 as part of the Integrated Test Strategy for CPCE Increment 2. These events will culminate in the CPCE Increment 2/TSI Operational Assessment later in the year that will inform a fielding decision. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to the additional Developmental testing in FY2023.			
Title: Program Management ***Description:*** Program management includes efforts related to the management and operations of the Product Management office. Includes matrix and contractor personnel, program planning meetings, IPTs, and market research activities related to the potential adoption of new technology solutions into the CPCE baseline. ***FY 2022 Plans:*** Program office management of engineering and logistics teams remains a requirement in FY 2022. This support includes personnel covered by Functional Support Agreements between PM Mission Command and various Government support agencies such as the Army Research and Development Center (ARDEC), and Combat Capabilities Development Command (CCDC). Program Management efforts in the FY 2022 timeframe will also include management of all SW development, system engineering, exercise support, and testing. ***FY 2023 Plans:*** Program office management of engineering, logistics teams, SW development, system engineering, exercise support, and testing remains a requirement in FY23. This support includes personnel covered by Functional Support Agreements between PM Mission Command and various Government support agencies such as the Army Research and Development Center (ARDEC), and Combat Capabilities Development Command (CCDC). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease commensurate with program management required for FY23 planned efforts.	2.334	2.481	1.945
Title: SBIR/STTR ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	1.282	-
Accomplishments/Planned Programs Subtotals	26.485	35.117	28.070

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• B70000: *COE Tactical Server Infrastructure (TSI)*	86.198	99.858	94.287	-	94.287	106.611	110.237	110.509	110.419	Continuing	Continuing

Remarks

Related to CPCE is the Tactical Server Infrastructure (TSI) funding line, B70000, which funds computer hardware and software servers/hosting platforms for CPCE software.

D. Acquisition Strategy

CPCE/TSI is an Acquisition Category II program structured in increments to deliver capability every two years. Increment 1 aligns with Capability Drop (CD) 1 and Increment 2 aligns with CDs 2 & 3. Increment 3 will align with CDs 4 & 5.

In accordance with DoD direction that procurement and modification of Commercial Off-the-Shelf (COTS) products is the preferred acquisition approach, CPCE/TSI procured a COTS battle management system to serve as the underlying core infrastructure, and is modifying that COTS product to meet additional Army requirements, including backwards compatibility with enduring systems. For development of additional capabilities to be integrated into the COTS system, CPCE/TSI follows the Agile development approach (Epics, Iterations, and Sprints) that allows capabilities to be engineered, developed and tested rapidly.

The Combat Capabilities Development Command (CCDC) Armaments Center Weapons and Software Engineering Center (WSEC) and the Communications-Electronics Command (CECOM) Software Engineering Center (SEC) are prime Government partners in system development. Commercial suppliers are assigned efforts through GSA Mission Command Engineering Services vehicles and Multiple Award Task Order (MATO) contracts.

Hardware (server) platforms are COTS and procured under the Tactical Services Infrastructure (TSI) funding line through existing vehicles from GSA, Common Hardware Systems (CHS) and the Army Computer Hardware Enterprise Software and Solutions (CHESS).

CPCE Inc 0 brought the core software infrastructure and initial movement and maneuver capabilities. Inc 1 met the requirements of the CPCE Requirements Definition Package and Capability Drop 1 and focused on enhancements to Inc 0 and enabling enduring system convergence. Inc 2 will bring additional warfighting function capabilities and enhancements to existing capability.

The Product Management Office delivers the CPCE core infrastructure (underlying basis for convergence), Movement & Maneuver capabilities, and Sustainment capabilities. The Program Management Office continues to fund developmental and convergence work that enhances the capabilities of the core infrastructure, while external organizations such as other Army Programs of Record and S&T organizations fund the development of specific warfighting capabilities and technologies for integration into the core framework. Testing is conducted continually with a culminating Operational Assessment every two years. Operational Assessment testing includes the core framework and all capabilities integrated since the prior increment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Support (Gov't-Core)	Sub Allot	PM Mission Command : APG, MD	5.603	-		-		-		-		-	0.000	5.603	-
PM Support (Gov't-Matrix)	IA	Various Matrix Orgs incl CECOM SEC, ILSC, PRD, et al) : APG, MD	6.689	0.601		1.297	Oct 2021	0.637	Oct 2022	-		0.637	Continuing	Continuing	-
PM Support (SETA Contractor)	C/FFP	Multiple incl CACI and others : APG, MD	19.702	1.733	Nov 2020	1.184	Nov 2021	1.308	Nov 2022	-		1.308	Continuing	Continuing	-
SBIR/STTR	TBD	NA : NA	-	-		1.282		-		-		-	0.000	1.282	-
		Subtotal	31.994	2.334		3.763		1.945		-		1.945	Continuing	Continuing	N/A

Remarks

Decrease commensurate with program management required for FY23 planned efforts.

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Requirements Engineering	Various	SW Dev Contractors and Multiple Matrix Orgs : Various Locations	23.831	-		-		-		-		-	0.000	23.831	-
Software Development - Core Infrastructure	Option/ Various	ARDEC, CCDC, Systematic : Picatinny, NJ APG, MD Centerville, VA	176.715	17.583	Oct 2020	28.014	Nov 2021	19.366	Nov 2022	-		19.366	Continuing	Continuing	-
Joint and Coalition Interoperability	Various	Multiple : Various	0.296	-		-		-		-		-	0.000	0.296	-
Hardware / Software Integration	IA	Various Matrix Orgs incl CECOM SEC,	25.897	1.150	Oct 2020	1.550	Dec 2021	1.489	Dec 2022	-		1.489	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		ARDEC, ILSC, PRD, et al) : APG Md													
		Subtotal	226.739	18.733		29.564		20.855		-		20.855	Continuing	Continuing	N/A

Remarks

Decrease in SW Dev-Core Infrastructure is commensurate with planned scope of work required in FY23.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Support	C/FFP	SSCI : Austin, TX	2.989	-		-		-		-		-	0.000	2.989	-
		Subtotal	2.989	-		-		-		-		-	0.000	2.989	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop and Conduct Tests and Assessments	MIPR	Multiple Test Agencies : Multiple Locations (Primary APG)	18.979	5.418	Oct 2020	1.790	Oct 2021	5.270	Nov 2022	-		5.270	Continuing	Continuing	-
		Subtotal	18.979	5.418		1.790		5.270		-		5.270	Continuing	Continuing	N/A

Remarks

Increase due to the addition of the Operational Assessment in FY2023.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	280.701	26.485		35.117		28.070		-		28.070	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*

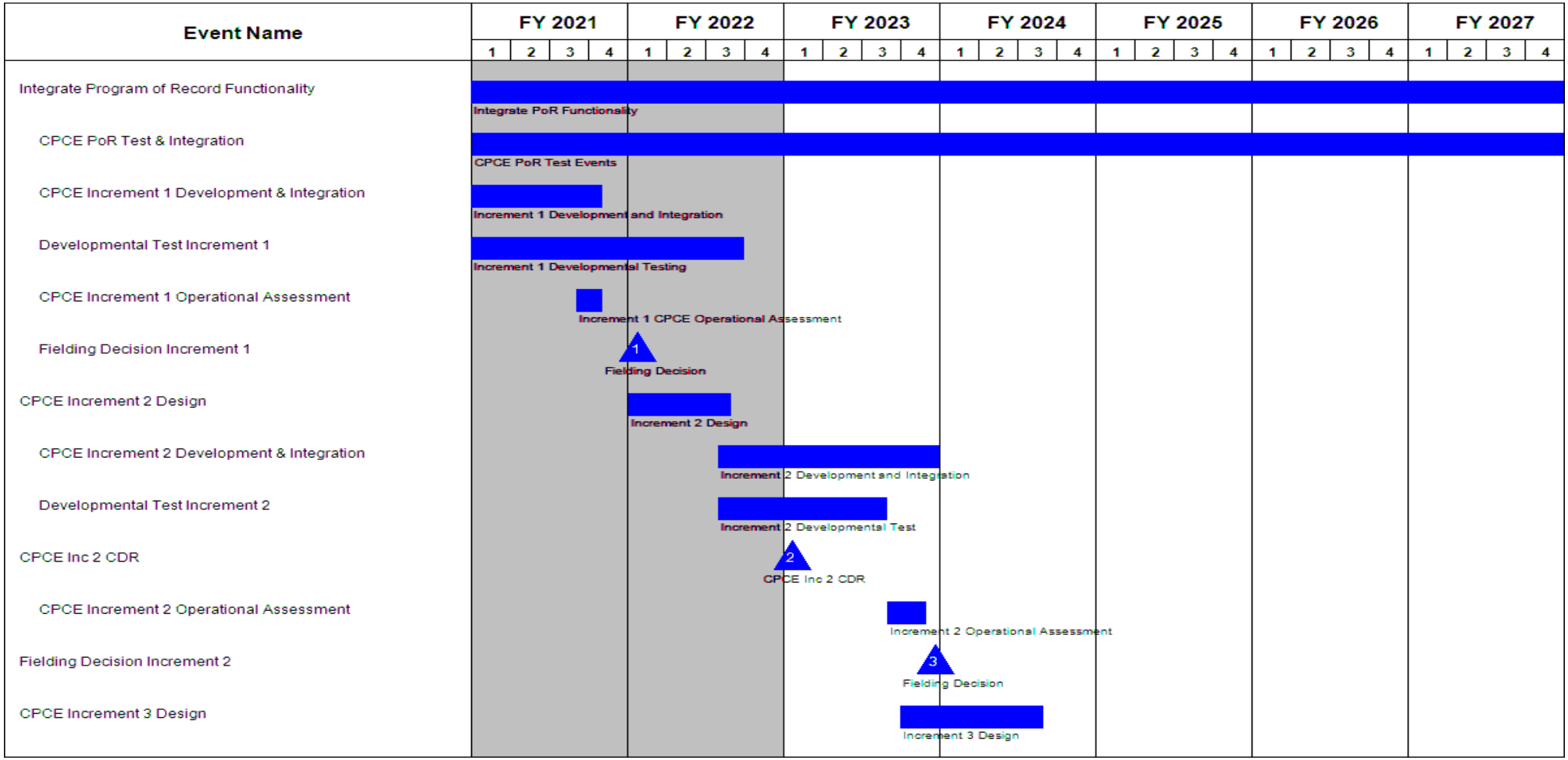


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*

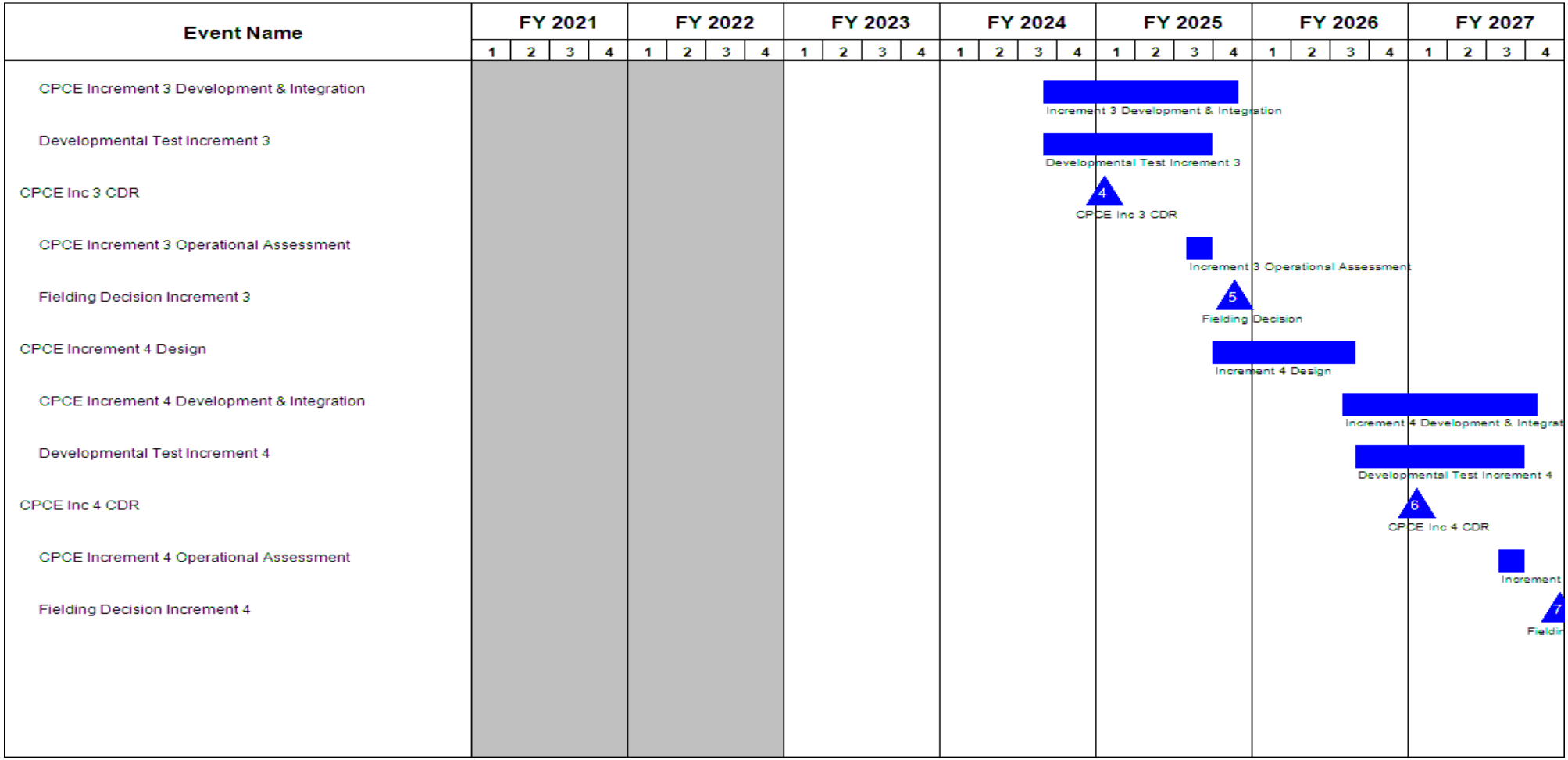


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Integrate Program of Record Functionality	2	2019	4	2027
CPCE PoR Test & Integration	1	2018	4	2027
CPCE Increment 1 Design	3	2019	2	2020
CPCE Increment 1 Development & Integration	2	2020	4	2021
Developmental Test Increment 1	3	2020	3	2022
CPCE Increment 1 Operational Assessment	3	2021	4	2021
Fielding Decision Increment 1	1	2022	1	2022
CPCE Increment 2 Design	1	2022	3	2022
CPCE Increment 2 Development & Integration	3	2022	4	2023
Developmental Test Increment 2	3	2022	3	2023
CPCE Inc 2 CDR	1	2023	1	2023
CPCE Increment 2 Operational Assessment	3	2023	4	2023
Fielding Decision Increment 2	4	2023	4	2023
CPCE Increment 3 Design	4	2023	3	2024
CPCE Increment 3 Development & Integration	3	2024	4	2025
Developmental Test Increment 3	3	2024	3	2025
CPCE Inc 3 CDR	1	2025	1	2025
CPCE Increment 3 Operational Assessment	3	2025	3	2025
Fielding Decision Increment 3	4	2025	4	2025
CPCE Increment 4 Design	4	2025	3	2026
CPCE Increment 4 Development & Integration	3	2026	4	2027
Developmental Test Increment 4	3	2026	3	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ4 / *COMMAND POST COMPUTING ENVIRONMENT (CPCE)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CPCE Inc 4 CDR	1	2027	1	2027
CPCE Increment 4 Operational Assessment	3	2027	3	2027
Fielding Decision Increment 4	4	2027	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*				Project (Number/Name) EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*			
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
EJ5: *MOUNTED COMPUTING ENVIRONMENT (MCE)*	-	9.994	21.874	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning with FY 2023, the Army has realigned MCE RDT&E funding for the development of the Mounted Mission Command - Software (MMC-S) from this line to the Joint Battle Command - Platform (JBC-P) RDTE line (PE 0604805A/Proj 593). These funds will support continued MMC-S development as part of the MMC Family of Systems (MMC FoS) strategy for modernizing and replacing the JBC-P capability. Consolidating the RDTE funding enables agile development and flexibility in support of the MMC FoS.

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Cross Functional Team.

This funding line is directly aligned to the Army Network Modernization Strategy LOE 2, Common Operating Environment (COE). PdM efforts are aligned to support the Network-Cross Functional Team (N-CFT) Capability Set approach to achieve the Army's Network Modernization Strategy.

The Mounted Computing Environment (MCE) supports N-CFT LOE 2 by providing:
- Critical Interoperability features that bridge the communications gap between the Command Post Computing Environment (CPCE) and Mobile Handheld Computing Environment (Nett Warrior)
- Data mediation, message format translation, and waveform exchanges across all CEs delivering improved information dissemination
- Mounted Common Operating Picture (COP) data sources, shared blue / red situational awareness, and Position / Location Information across the CEs
- Common, reusable services that enable Warfighting Function (WfF) convergence for rapid capability development and delivery with reduced costs for external PORs
- Mounted platform data sensor collection, processing, and disbursement applications that enable and enhance WfFs on the battlefield
- Foundational Cross-Cutting Capabilities (CCCs) that integrate with Joint C5ISR and strike capabilities

The MCE, which is one of six Computing Environments (CE) under the COE, internally develops and hosts applications (apps) developed by programs external to Project Manager Mission Command (PM MC) to provide robust WfF capabilities. MCE RDTE funding is executed to develop Mounted Mission Command-Software (MMC-S) (described below) to enable these convergence efforts.

Requirements for MMC-S (MCE) are established in the Army Requirements Oversight Council (AROC)-approved COE Information Systems Initial Capability Document (IS ICD) and the MCE Requirements Definition Package (RDP). MMC-S will support the next-generation network, transceiver, and more mature cross-Computing Environment (CE) interfaces.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

At the Materiel Development Decision (MDD) review, the Milestone Decision Authority (MDA) signed an Acquisition Decision Memorandum (ADM) in June 2020 designating MMC-S as an ACAT II program of record (POR) under the MCE RDP.

MMC-S employs a Developmental Operations (DevOps) process to incrementally develop capability to satisfy Warfighter requirements and inform fielding decisions. DevOps activities will incorporate new capabilities and enhancements driven by the RDP and based on user feedback. Furthermore, MMC-S will provide the foundation to support third-party application convergence onto the MMC-S baseline. MMC-S utilizes the Android Tactical Assault Kit (TAK), which is a geospatial infrastructure and military situational awareness application that allows for precision targeting, surrounding land formation intelligence, situational awareness, navigation, and data sharing.

FY 2022 funding supports the continued development of the MMC-S baseline, version 3.1, for a Development Test (DT) and Capability Set 23 (CS23) Operational Demonstration (Op Demo) culminating in a Limited Deployment Decision in 4QFY22. Furthermore, FY 2022 funding begins the second phase of MMC-S development, version 3.2, and implementation of new capabilities to support additional networks and bolster cross-Computing Environment (CE) interfaces. These efforts are aligned to CS23.

FY 2023 MCE RDTE funding has been realigned to JBC-P (PE 0604805A, Proj 593). These funds will support continued MMC-S development as part of the MMC Family of Systems (MMC FoS) strategy for modernizing and replacing the JBC-P capability. Consolidating the RDTE funding enables agile development and flexibility in support of the MMC FoS.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Software Development	9.447	15.841	-
Description: MMC-S provides an integrated mission command capability across Platforms, through all echelons, delivering simplicity, intuitiveness, core services and applications, a common look and feel, and functionality across all Warfighting Functions (WfF); Fires, Logistics, Intelligence, and Maneuver. Software development is focused on enhanced situational awareness functions, cross-cutting data exchange services, and Mission Command applications displayed on the next-generation common geospatial solution [map] through a graphical user interface that delivers a "common look and feel" across the CEs. ***FY 2022 Plans:*** FY 2022 funding will continue development and incorporation of baseline capabilities of MMC-S version 3.1 focused on infrastructure, core utilities, backwards compatibility, and WfF application convergence into a holistic system of systems, while ensuring subsystems function together in accordance with program requirements, specifications, and interoperability requirements. These efforts require extensive development of complex capabilities to ensure robust features are delivered to the Warfighter. FY 2022 funding will begin development of the next SW version, MMC-S version 3.2, that will focus on multiple platforms and programs such as: Platform Integration (Stryker, JLTV, Abrams, Bradley, AMPV), Sensor Integration (Long-Range Acquisition System (LRAS), Improved Target Acquisition System (ITAS), Fire-Support Sensor System (FS3), Netted Lethality Upgrades,			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Precision Fires - Mounted Integration, finalize OTA Updates (Over The Network Keying (OTNK), Map Updates), Remote Display, Improved Route Planning / Navigation, Network Path Diversity (Smart Routing / APACE), additional 3rd Party Application Integration, Message Standards Migration, Netted asset (Non A-PNT), and VICTORY migration. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Beginning in FY 2023, MCE RDTE funding has been realigned to PE 0604805A, Proj 593			
Title: Software/Systems Engineering ***Description:*** Perform Software and Systems Engineering (SE) in support of the development of MMC-S (MCE) capabilities, applications and services, to include, but not limited to, executing engineering studies, software architecture development, system analysis, technical readiness assessments, technical exchange meetings and events, and development of related reports and deliverables described in the MCE RDP. SEs will coordinate the development of common infrastructure components with CPCE and M/HHCE to define and incorporate the COE cross-cutting capabilities. ***FY 2022 Plans:*** In FY 2022, MMC-S will continue required version 3.1 systems engineering activities, and begin version 3.2 SE activities to integrate 3rd party PoR applications onto the baseline software architecture, and platform integration onto the Army's wheeled platforms. MMC-S will continue DevOps with Army units in order to receive user feedback on MMC-S versions 3.1 and 3.2 to inform software development, refinement, and inform fielding decisions. SE activities will directly support MMC-S version 3.1?s LUT and AIC to inform the LDD in support of CS23. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Beginning in FY 2023, MCE RDTE funding has been realigned to PE 0604805A, Proj 593	-	0.972	-
Title: Test and Evaluation ***Description:*** Test and evaluation (T&E) efforts consist of planning and execution for required test events to inform fielding decisions and ensure the safe delivery of capability to the Warfighter. T&E events include: Development Operations (DevOps), Developmental Tests (DT), Software Assurance Tests, CS23 Integration Events, Risk Reduction Tests, Operational Demonstrations (Op Demos), Army Interoperability Certification (AIC) , Security Control Assessment-Validation, and Initial Operational Test and Evaluation (IOT&E). ***FY 2022 Plans:*** MMC-S will execute an MMC-S version 3.1 Limited User Test (LUT), to measure effectiveness, suitability, and survivability and provide an Adversary Assessment (AA) report to support the MMC-S v3.1 Software Materiel Release (SMR) review in 3Q23. The Army Interoperability Certification (AIC) will be executed to certify that MMC-S is interoperable and integrated with other systems on the tactical network. Both the LUT and AIC are required prior to the Limited Deployment Decision (LDD) in 4QFY22. MMC-S	0.068	3.339	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
will execute version 3.2 DevOps events to inform development efforts. In addition, version 3.1 CS23 Integration Events will inform the v3.1 LDD and the development of MMC-S v3.2 DevOps plans. MMC-S will utilize DevOps to enhance the MMC-S baseline to meet Warfighter requirements. Resources will support required instrumentation Verification, Validation, and Accreditation (VV&A) activities in preparation for the FY23 version 3.1 IOT to inform FDD. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Beginning in FY 2023, MCE RDTE funding has been realigned to PE 0604805A, Proj 593			
Title: PM Support (Matrix & Contractor) ***Description:*** Program management includes overall management of program execution, major text events, reporting, technical support, and logistical support. Includes participation in program planning meetings, Integrated Project Teams, Technical Exchange Meetings, stakeholder management, 3rd party application convergence, and Science and Technology efforts and convergence. These efforts are continuous for the life of the program. They are not tied to specific versions of MMC-S. ***FY 2022 Plans:*** Will continue to provide Technical area contract support includes system development and engineering changes to MMC-S, system analysis of Program of Record (PoR) systems and future systems for integration and convergence, technical readiness assessments, and stakeholder technical exchange meetings and events. This support includes the creation and implementation of Functional Support Agreements (FSAs) between PM Mission Command and various Government support agencies, such as the Combat Capabilities Development Command (CCDC) C5ISR (Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance) Center, and other PEOs (e.g. PEO GCS). Program Management efforts in FY 2021 include business area support to ensure funding and contracts are planned and available for SW development, system engineering, and test efforts. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Beginning in FY 2023, MCE RDTE funding has been realigned to PE 0604805A, Proj 593	0.479	0.924	-
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.798	-
Accomplishments/Planned Programs Subtotals	9.994	21.874	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

MCE is the Army's initiative to provide simple and intuitive Mission Command on-the-Move (MCoTM) and situational awareness down to the platoon level. It is standards based, protected, and supports incremental improvements and WfF app capability enhancements. MMC-S leverages existing JBC-P hardware and network, and is deployed as a SW only upgrade to replace JBC-P SW. The MMC-Software will exploit the MMC-Transport (BFT 3 network) and hardware capability-maturation, continuously enhancing capabilities, security, and network resiliency that outpaces adversarial countermeasures and threats. MMC-S provides a common user-experience that enables leaders to lead and fight their formations from anywhere on the battlefield. MMC-S serves as the data mediator between disparate CEs, the Command Post Computing Environment (CPCE) and the Mobile Handheld Computing Environment (Nett Warrior), enabling seamless Mission Command and Common Operating Picture (COP) generation across all three CEs.

MMC-S utilizes an incremental development approach, leveraging DevOps, to ensure capability is delivered quickly, satisfies requirements, and addresses Warfighter feedback. This agile development process injects enhancements into the baseline software, making it easier and faster to incorporate technological advances. The product office conducts commercial software assessments to determine applicability and suitability for inclusion in the MMC-S baseline.

Software development increments and fielding decisions are agile and are programmatically aligned with the two-year Army Capability Sets within the five-year Requirements Development Package (RDP; i.e. - IT Box). MMC-S is developed in Capability Assessment Packages (CAP), which are small groupings of requirements and capability that are manageable, tailorable, and scalable to meet Warfighter needs. The CAPS are developed by the Lead Systems Integrator (LSI) in three to twelve month timeframes. Collections of CAPs form MMC-S Engineering Releases (ER) / Capability Drops (CDs), which build upon one another leading to a complete incremental release (i.e. version 3.1). Incremental releases will be fielded with the Army Capability Sets. LDD in 4QFY22 for Increment v3.1 is aligned to CS23. Full Deployment Decision (FDD) for MMC-S v3.1 is scheduled for 4QFY23. FDD for MMC-S v3.2 is scheduled for 4QFY24, aligned to CS25. FDD for MMC-S v3.3 is scheduled for 4QFY26, aligned to CS27.

At the Materiel Development Decision (MDD) review, the Milestone Decision Authority (MDA) signed an Acquisition Decision Memorandum (ADM) in June 2020 designating MMC-S as an ACAT II program of record (POR) under the MCE RDP.

Beginning with FY 2023, the Army has realigned MCE RDT&E funding for the development of the Mounted Mission Command - Software (MMC-S) from this line to the JBC- P RDTE line (PE 0604805A/Proj 593). These funds will support continued MMC-S development as part of the MMC Family of Systems (MMC FoS) strategy for modernizing and replacing the JBC-P capability. Consolidating the RDTE funding enables agile development and flexibility in support of the MMC FoS.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Support (Matrix & Contractor)	Various	PM Mission Command : Aberdeen Proving Ground, MD	5.664	0.479	Nov 2020	0.924	Nov 2021	-		-		-	Continuing	Continuing	-
SBIR/STTR Transfer	Various	Various : Various	-	-		0.798		-		-		-	0.000	0.798	-
		Subtotal	5.664	0.479		1.722		-		-		-	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	Various	PM Mission Cmd, Multiple Matrix Orgs and SW Dev Contractors : Aberdeen Proving Ground, MD	36.808	9.447	Dec 2020	15.841	Dec 2021	-		-		-	Continuing	Continuing	-
Software/Systems Engineering	Various	PM Mission Cmd, Multiple Matrix Orgs and SW Dev Contractors : Aberdeen Proving Ground, MD	21.540	-		0.972	Nov 2021	-		-		-	Continuing	Continuing	-
		Subtotal	58.348	9.447		16.813		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test, Evaluation and Integration	MIPR	Multiple Test Agencies; Multiple Locations : Aberdeen Proving Ground, MD	8.927	0.068	Nov 2020	3.339	Nov 2021	-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	8.927	0.068		3.339		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	72.939	9.994		21.874		-		-		-	Continuing	Continuing	N/A

Remarks

Beginning with FY 2023, the Army has realigned MCE RDT&E funding for the development of the Mounted Mission Command - Software (MMC-S) from this line to the JBC- P RDTE line (PE 0604805A/Proj 593). These funds will support continued MMC-S development as part of the MMC Family of Systems (MMC FoS) strategy for modernizing and replacing the JBC-P capability. Consolidating the RDTE funding enables agile development and flexibility in support of the MMC FoS.

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

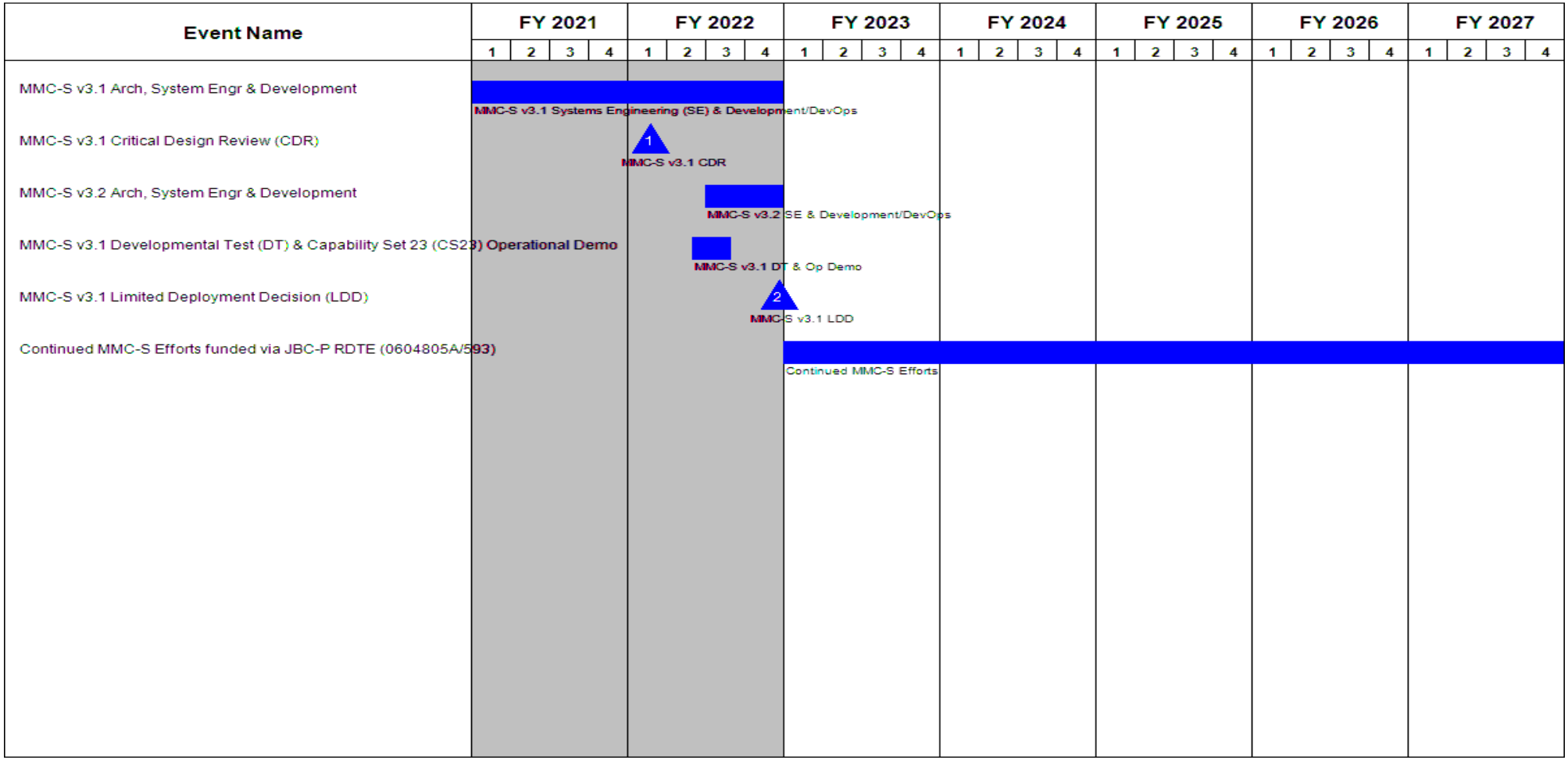


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

Note

Beginning with FY 2023, the Army has realigned MCE RDT&E funding for the development of the Mounted Mission Command - Software (MMC-S) from this line to the JBC- P RDTE line (PE 0604805A/Proj 593). These funds will support continued MMC-S development as part of the MMC Family of Systems (MMC FoS) strategy for modernizing and replacing the JBC-P capability. Consolidating the RDTE funding enables agile development and flexibility in support of the MMC FoS.

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ5 / *MOUNTED COMPUTING ENVIRONMENT (MCE)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MMC-S v3 Test & Integration	3	2017	4	2018
MMC-S v3.1 Arch, System Engr & Development	1	2019	4	2022
MMC-S v3 Customer Test	1	2019	1	2019
MMC-S Materiel Development Decision (MDD) Briefing	2	2020	2	2020
N-CFT's ITN 19 Experimentation Event	2	2020	2	2020
MMC-S v3.1 Critical Design Review (CDR)	1	2022	1	2022
MMC-S v3.2 Arch, System Engr & Development	3	2022	4	2022
MMC-S v3.1 Developmental Test (DT) & Capability Set 23 (CS23) Operational Demo	2	2022	3	2022
MMC-S v3.1 Limited Deployment Decision (LDD)	4	2022	4	2022
Continued MMC-S Efforts funded via JBC-P RDTE (0604805A/593)	1	2023	4	2027

Note

Beginning with FY 2023, the Army has realigned MCE RDT&E funding for the development of the Mounted Mission Command - Software (MMC-S) from this line to the JBC- P RDTE line (PE 0604805A/Proj 593). These funds will support continued MMC-S development as part of the MMC Family of Systems (MMC FoS) strategy for modernizing and replacing the JBC-P capability. Consolidating the RDTE funding enables agile development and flexibility in support of the MMC FoS.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EJ6 / *TACTICAL ENHANCEMENT*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
EJ6: *TACTICAL ENHANCEMENT*	-	-	7.860	-	-	-	-	-	-	-	0.000	7.860
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

TROPO: Tactical Enhancement supports the evaluation and testing requirements for Troposcatter Transmission (TROPO) capabilities procured and fielded under the Signal Modernization (SIGMOD) funding line, B00010. TROPO will provide redundancy communications in a Satellite denied environment by providing improved Line of Sight and beyond line of sight radio systems.
Enables Mission Command in a Satellite Denied environment by providing Beyond Line of Sight (BLOS) capability over longer ranges and at higher throughput than the current BLOS System. TROPO extends the network by utilizing a significantly reduced SWaP radio verses the current system. TROPO will enable Army units to reduce reliance on costly satellite bandwidth.

COMMAND POST NETWORKING: Enables Command Post networking capabilities by providing communications solutions to enable a more survivable Command Post against near peer advisories. The solutions will utilize advanced waveform and antenna improvements to decrease radio frequency detection and interception in the battlefield and will be integrated onto the appropriate platforms to increase Command Post survivability.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: IOT&E for TROPO systems	-	5.060	-
Description: Funds support TROPO IOT&E ***FY 2022 Plans:*** $5,060K funds TROPO IOT&E testing requirement ***FY 2022 to FY 2023 Increase/Decrease Statement:*** No FY23 RDTE funding.			
Title: Command Post Networking	-	2.513	-
Description: Funds support Command Post Networking ***FY 2022 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ6 / *TACTICAL ENHANCEMENT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
$2,800K funds Command Post Networking efforts ***FY 2022 to FY 2023 Increase/Decrease Statement:*** No FY23 RDTE funding.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.287	-
Accomplishments/Planned Programs Subtotals	-	7.860	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• B00010: *Signal Modernization Program*	151.179	140.036	179.853	-	179.853	175.020	213.471	214.078	214.030	Continuing	Continuing

Remarks

B00010: OPA funding line for Signal Modernization (SIGMOD)

D. Acquisition Strategy

These funds will be used to conduct System Evaluation and Formal Testing of the various Signal Mod capabilities, specifically the TROPO systems. This is in order to facilitate integration into the Tactical Networks. These test events will meet all mandatory testing requirements with full ATEC oversight. This Acquisition Strategy will integrate proven Commercial-Off-The-Shelf (COTS) capabilities into existing Tactical Network nodes to expand and enhance network capacity and user access. The TROPO capabilities are acquired as ACAT III programs to replace legacy equipment in the field while utilizing DoDI 5000.02 standard acquisition approaches, starting with Milestone C Determination for TROPO (4QFY18).

The Acquisition Strategy will integrate proven Commercial-Off-the-Shelf (COTS) capabilities into existing Tactical Network nodes to provide a more secure network connection between command posts, command post vehicles and end user devices.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EJ6 / *TACTICAL ENHANCEMENT*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sig Mod	SS/FP	TBD : TBD	1.392	-		-		-		-		-	0.000	1.392	-
Army Withhold and Unit Task Reorganization (UTR) Realignment	SS/FFP	Harris Corp : Arlington, VA	7.777	-		-		-		-		-	0.000	7.777	-
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.287		-		-		-	0.000	0.287	-
		Subtotal	9.169	-		0.287		-		-		-	0.000	9.456	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NCW-R	SS/CPFF	CODES1403AALION SCIENCE AND TECHNOLOGY CORPORATION : 202BURR RIDGE IL 60527-0849FACILITY	27.416	-		-		-		-		-	0.000	27.416	-
		Subtotal	27.416	-		-		-		-		-	0.000	27.416	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TRILOS Testing	MIPR	ATEC : Aberdeen Proving Ground, MD	19.823	-		-		-		-		-	0.000	19.823	-
TROPO Testing	MIPR	ATEC : Aberdeen Proving Ground, MD	-	-		5.060	Apr 2022	-		-		-	0.000	5.060	-
Command Post Networking	C/Various	Various : Various	-	-		2.513	Apr 2022	-		-		-	0.000	2.513	-
		Subtotal	19.823	-		7.573		-		-		-	0.000	27.396	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EJ6 / *TACTICAL ENHANCEMENT*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.408	-		7.860		-		-		-	0.000	64.268	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ6 / *TACTICAL ENHANCEMENT*

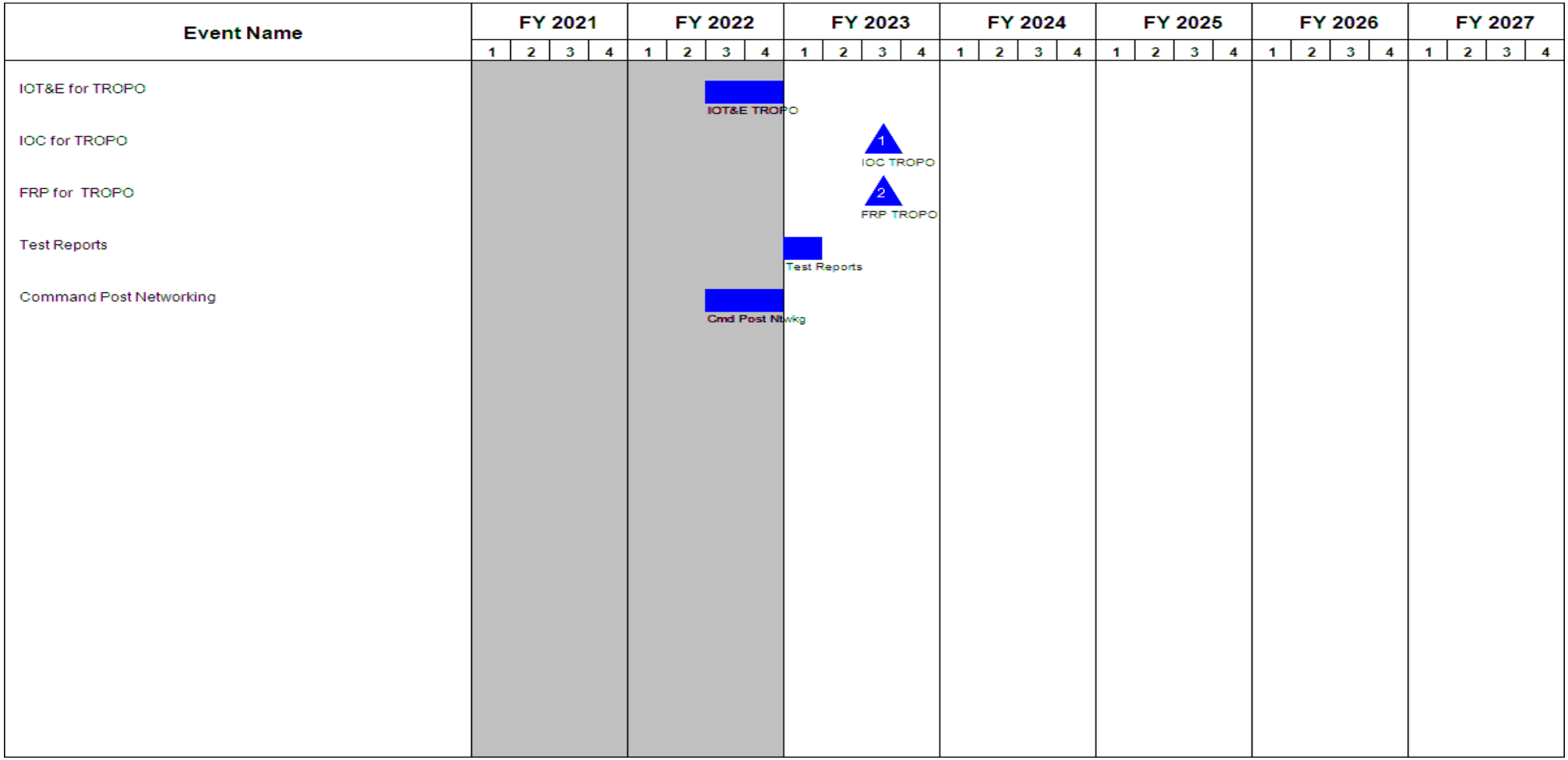


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EJ6 / *TACTICAL ENHANCEMENT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
IOT&E for TROPO	3	2022	4	2022
IOC for TROPO	3	2023	3	2023
FRP for TROPO	3	2023	3	2023
Test Reports	1	2023	1	2023
Command Post Networking	3	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
EK9: *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*	-	3.252	3.366	3.400	-	3.400	-	-	-	-	0.000	10.018
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Network Modernization Strategy LOE 1, Unified Network in support of efforts the Network-Cross Functional Team (CFT) capability set approach to achieve the Army's Network Modernization strategy and initiatives.

Unified Network Operations (UNO) delivers an integrated Network Operations (NetOps) capability, based upon an open framework, for common planning, configuration, management, monitoring, and defense of the Network. This will be accomplished through the integration, co-hosting, and federation of multiple NetOps systems. UNO aligns with the Army's intent to develop NetOps prototypes, conduct Development Operations (DevOps), get user feedback, make adjustments and ultimately deliver enhanced capabilities to the operational force in the shortest time possible.

The total cost of the Unified Network Operations (UNO) Middle Tier of Acquisition (MTA) effort is $84.352 million RDT&E from FY19 to FY24. The remainder (FY23-24) of the $31.397 million for UNO MTA is fully funded across the Future Years Defense Program (FYDP). In accordance with the National Defense Authorization Act (NDAA) policy for MTA funding, UNO MTA RP leverages funds from Tactical Network Operations Management (TNOM) 654818/EK9 and Unit Task Reorganization (UTR) 654818/EW3 to achieve its required funding levels.

FY 2023 funding supports UNO MTA Rapid Prototyping (RP) efforts of UNO v1.1 via NetOps capabilities that build upon current efforts, efforts that align with Chief of Staff of the Army (CSA) guidance to provide delivery of simplified NetOps capabilities across the tactical network, and include emerging capability requirements stemming from Network CFT initiatives and directed requirements. UNO will also support the delivery of integrated capabilities to plan, install, operate, maintain, and secure the Army's end-to-end network in support of the commander's mission priorities. Army's approved requirements for UNO are found in the Integrated Tactical Network (ITN) Abbreviated - Capability Definition Document (A-CDD) dated 26 June 2019. UNO Information Systems-Initial Capabilities Document (IS-ICD) was approved 28 June 2021. Program office anticipates transition of UNO MTA RP to UNO PoR beginning in FY24.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Product Development	3.252	3.243	3.400
Description: Network Planner provides the product development of workflows that guide Soldiers through planning the Tactical Radios, SATCOM, Line of Sight (LOS) and TROPO systems, automates the analysis process to recommend locations to place LOS Nodes based on Area of Responsibility, improves Planning accuracy for Antenna & Radio templates, based on updated			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023

performance parameters, simplifies configuration operations through the use of a centralized network database and supports Unit Task Reorganization (UTR), and provides consistent look and feel with embedded training.

Network Management provides the product development into the Network Common Operational Picture (COP) for all tactical networks systems, management to Tactical Radios, SATCOM LOS and TROPO systems, network status information to monitor and adjust the network to meet mission requirements, and consistent look and feel with embedded training.

FY 2022 Plans:

FY 2022 funding will support MTA Rapid Prototyping efforts of UNO via NetOps capabilities that build upon current efforts, expand those efforts to address CSA priorities, and include emerging capability requirements stemming from Network CFT initiatives and directed requirements. Support development, assessments, and deliveries of integrated capabilities to plan, install, operate, maintain, and secure the Army's end-to-end network in support of the commander's mission priorities.

UNO's MTA will support prototyping of NetOps capabilities that enable command and control of the Tactical Network which will provide simplicity via a Common Operating Picture (COP), a flexible framework enabling rapid integration of future commercial/ government tools, and reliable network information to the Soldiers.

The Network Planner and Network Management capabilities will support Network CFT initiatives and directed requirements utilizing the adapt and buy approach, as well as modernization, put forth by Army leadership.

Continues product development of the simplified Network Planner functionality, which enables automated NetOps capabilities to plan, manage and operate the Tactical Network via user workflows and reduces the cognitive burden to the Soldiers. Will continue development of Radio Planning capabilities in order to plan and create configuration files for emerging Integrated Tactical Network (ITN) radios and waveforms.

Continues product development of the simplified Network Management functionality, which enables the management and troubleshooting of the network elements that comprise the Tactical Network by monitoring local nodes for network health status, performance, location, and security, in addition to displaying monitored data to the local operator. Will continue enhancement and integration of the Federated Data Repository, which reduces time in task to the Soldiers and enables rapid Unit Task Reorganization (UTR).

FY 2023 Plans:

FY 2023 funding will support UNO MTA Rapid Prototyping (RP) efforts of UNO via NetOps capabilities that build upon current efforts, expand those efforts to address CSA priorities, and include emerging capability requirements stemming from Network

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
CFT initiatives and directed requirements. Funding will also support development, assessments, and deliveries of integrated capabilities to plan, install, operate, maintain, and secure the Army's end-to-end network in support of the commander's mission priorities. The UNO MTA RP will support prototyping of NetOps capabilities that enable command and control of the Tactical Network which will provide simplicity via a Common Operating Picture (COP), a flexible framework enabling rapid integration of future commercial/ government tools, and reliable network information to the Soldiers. The Network Planner and Network Management capabilities will support Network CFT initiatives and directed requirements utilizing the adapt and buy approach, as well as modernization, put forth by Army leadership. The UNO MTA RP will continue product development of the simplified Network Planner functionality, which enables automated NetOps capabilities to plan, manage and operate the Tactical Network via user workflows and reduces the cognitive burden to the Soldiers. Will continue development of Radio Planning capabilities in order to plan and create configuration files for emerging Integrated Tactical Network (ITN) radios and waveforms. The UNO MTA RP will continue product development of the simplified Network Management functionality, which enables the management and troubleshooting of the network elements that comprise the Tactical Network by monitoring local nodes for network health status, performance, location, and security, in addition to displaying monitored data to the local operator. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY22 to FY23 increase to Product Development resourcing remains consistent within inflation.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.123	-
Accomplishments/Planned Programs Subtotals	3.252	3.366	3.400

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• EW3: *Unit Task Reorganization (UTR) Development*	19.027	9.346	13.814	-	13.814	14.183	14.355	14.359	14.498	Continuing	Continuing

Remarks

In accordance with the National Defense Authorization Act (NDAA) policy for MTA funding, UNO MTA leverages funds from Tactical Network Operations Management (TNOM) 654818/EK9 and Unit Task Reorganization (UTR) 654818/EW3 to achieve its required funding levels. Network Management Systems (NMS) (BA9301/BA9312) funding was removed following the Materiel Development Decision for the Ruggedized Applications Platform - Tactical Radios (RAP-TR) program of record in Oct 2021.

D. Acquisition Strategy

Unified Network Operations (UNO) (EK9) supports a mid-tier acquisition (MTA) authority granted by the Army Acquisition Executive (AAE)'s 14 May 2019 Acquisition Decision Memorandum (ADM). UNO Information Systems-Initial Capabilities Document (IS-ICD) was approved 28 June 2021. Program office anticipates transition of UNO MTA RP to UNO PoR beginning in FY24.

UNO leverages the MTA Rapid Prototyping acquisition pathway/strategy for developing NetOps Solutions. Using incremental development and Commercial Off-The-Shelf (COTS) innovative technologies, UNO demonstrates new Plan, Manage, Provision, and Secure Network capabilities for Army modernization and operational needs. The UNO RP MTA utilizes DevOps to incorporate Soldier feedback to mitigate cost, schedule, and performance risks early in program lifecycle, receive analysis of technology/design maturity and component integration/interoperability, and provide refined requirements as well as leave behind operational residual capabilities to units for continuous user feedback and refinement of the product.

The objective of the UNO MTA RP is to develop and deliver prototypes into experimentation events for user feedback through FY 2024 within simulated operational environment(s) in order to provide operational capabilities within five years of the development of its approved requirement. UNO will complete transition from UNO MTA RP to a suitable acquisition pathway for software capability fielding in FY 2024 to meet Unified Network requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FY 2022 SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.123		-		-		-	0.000	0.123	-
		Subtotal	-	-		0.123		-		-		-	0.000	0.123	N/A

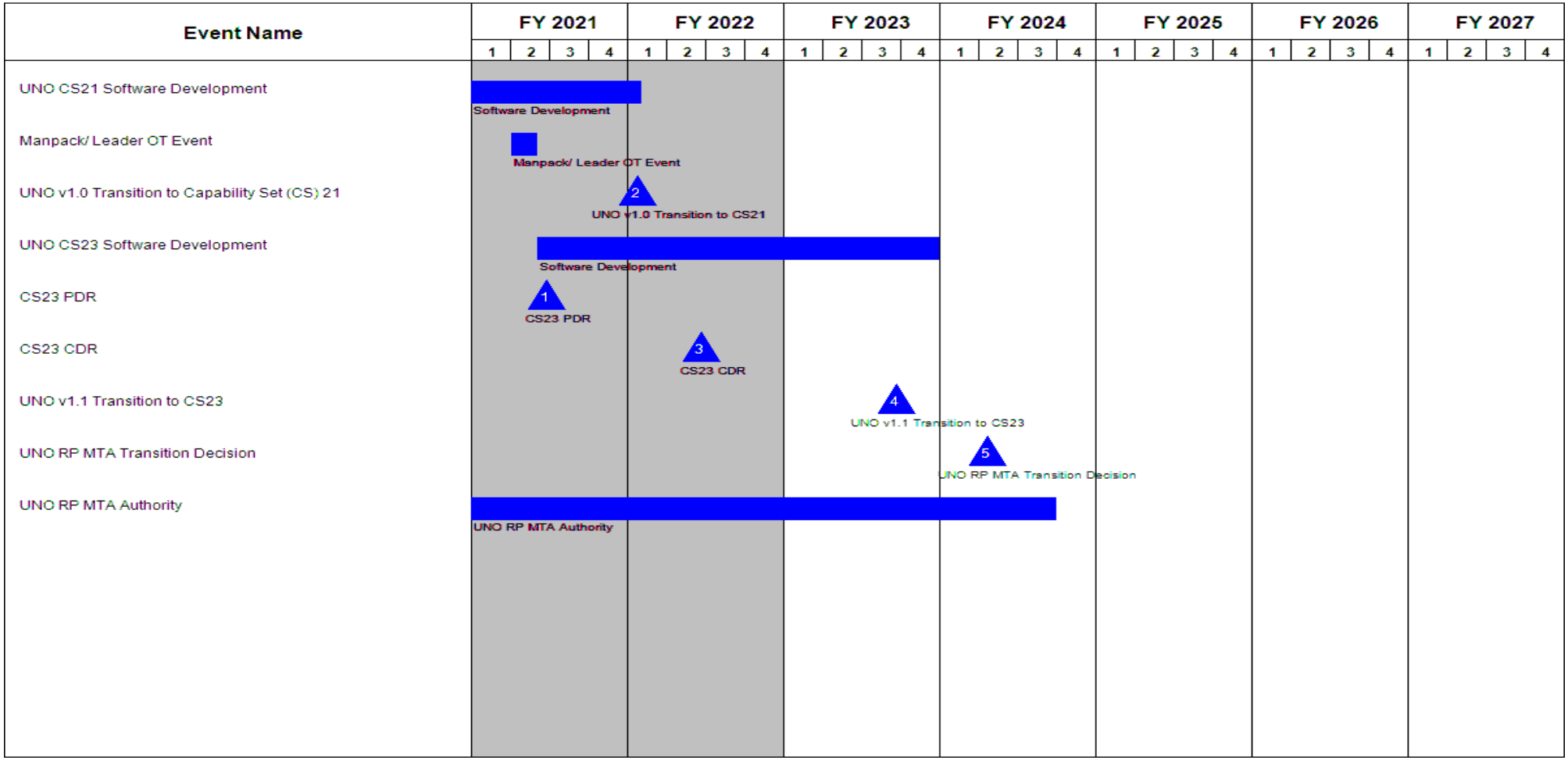
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/FFP	Various : Various	10.035	3.252	Apr 2021	3.243	Apr 2022	3.400	Jan 2023	-		3.400	0.000	19.930	-
		Subtotal	10.035	3.252		3.243		3.400		-		3.400	0.000	19.930	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.035	3.252		3.366		3.400		-		3.400	0.000	20.053	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*



Note

UNO MTA leverages both Tactical Network Operations Management (TNOM) 654818/EK9 and Unit Task Reorganization (UTR) 654818/EW3 in accordance with the National Defense Authorization Act (NDAA) policy for MTA funding.

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*

UNO MTA RP will support rapid prototyping efforts of UNO via NetOps capabilities that build upon current efforts, expand those efforts to address CSA priorities, and include emerging capability requirements stemming from Network Cross Functional Team (CFT) initiatives and directed requirements. Support delivering integrated capabilities to plan, install, operate, maintain, and secure the Army's end-to-end network in support of the commander's mission priorities. UNO capabilities will expand on Network CFT initiatives and directed requirements including Network Management and Integrated Planner utilizing the Capability Set strategy put forth by Army leadership.

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EK9 / *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UNO CS21 Software Development	3	2019	1	2022
Manpack/ Leader OT Event	2	2021	2	2021
UNO v1.0 Transition to Capability Set (CS) 21	1	2022	1	2022
UNO CS23 Software Development	2	2021	4	2023
CS23 PDR	2	2021	2	2021
CS23 CDR	2	2022	2	2022
UNO v1.1 Transition to CS23	3	2023	3	2023
UNO RP MTA Transition Decision	2	2024	2	2024
UNO RP MTA Authority	3	2019	3	2024

Note

UNO MTA leverages both Tactical Network Operations Management (TNOM) 654818/EK9 and Unit Task Reorganization (UTR) 654818/EW3 in accordance with the National Defense Authorization Act (NDAA) policy for MTA funding.

UNO MTA RP will support rapid prototyping efforts of UNO via NetOps capabilities that build upon current efforts, expand those efforts to address CSA priorities, and include emerging capability requirements stemming from Network Cross Functional Team (CFT) initiatives and directed requirements. Support delivering integrated capabilities to plan, install, operate, maintain, and secure the Army's end-to-end network in support of the commander's mission priorities. UNO capabilities will expand on Network CFT initiatives and directed requirements including Network Management and Integrated Planner utilizing the Capability Set strategy put forth by Army leadership.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*				Project (Number/Name) EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*			
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
EQ8: *Mobile/Handheld Computing Environment (M/HHCE)*	-	4.967	5.105	5.298	-	5.298	5.327	5.390	5.392	5.444	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project EQ8 - The Common Operating Environment (COE) is an approved set of computing technologies and standards that enables secure and interoperable applications to be developed and executed rapidly across a variety of computing environments. The Mobile/Handheld Computing Environment (M/HHCE) is one of the six computing environments under the COE, which provides the standards for all Army hand held applications enabling the use of common End User Devices by Soldiers, thereby eliminating redundant devices and reducing the Soldiers' load.

Nett Warrior (NW) and Integrated Visual Augmentation System (IVAS) are the instantiation of the M/HHCE and comply with the technical standards documented by the M/HHCE and provide the dismounted common computational platform for other products relevant to dismounted Soldiers. Through compliance with the M/HHCE, software applications from other programs are integrated with the NW and IVAS systems, reducing the need for duplicate hardware resulting in reduced Soldier Load. The M/HHCE is directly aligned to the Army Network Modernization Strategy Line of Effort (LOE) 1 (Unified Network). M/HHCE also supports the Army Network Modernization Strategy LOE 2 (Common Operating Environment). These efforts are aligned to the Army's Tactical Network Capability Set development and fielding plans by utilizing (1) interoperable data, message, and waveforms, (2) sensors and applications that enable operations across domains and (3) integration with Joint C4ISR and strike capabilities. NW leverages commercial smart phone devices and secure Army tactical radios to provide the dismounted leader an integrated mission command and situational awareness capability for use during combat operations. NW applied feedback from conventional and Special Operations units to procure and implement Secret and Secure But Unclassified (SBU) networking equipment for BCTs and the Security Force Assistance Brigades to enable faster, more flexible Mission Command data exchanges with Joint and Coalition forces while maintaining the existing integrated mission command capability with Mounted CE (e.g., JBCP) system. NW uses Commercial-Off-The-Shelf (COTS) and Non Developmental (NDI) computational & communication equipment to create a robust and flexible Integrated Tactical Network that enables faster and more accurate decision making in fights at the tactical level.

Requirements for the M/HH CE are established in the AROC approved COE Information Systems Initial Capability Document (IS ICD), the M/HHCE Requirements Definition Package (RDP), and the NW Capability Development Document in lieu of Capability Production Document. M/HHCE is a signature effort under the Network CFT (Common Operating Environment focused on dismounted Soldier). The Network CFT is one of the six Army modernization priorities per Army Modernization Strategy 2019. M/HHCE employs a Developmental Operations (DevOps) process to incrementally develop capability over time to satisfy requirements and meet fielding decisions. FY 2023 funding will continue DevOps activities to incorporate new capability and enhancements based on user feedback, as well as lay the groundwork to support migration of third-party applications onto the M/HHCE software baselines. Additionally, FY 2023 funding provides for integration/test equipment and risk reduction events/preparation to support Army Interoperability Certification (AIC) scheduled for 2QFY23.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

M/HHCE RDT&E resources are used to improve and add software applications / ATAK plug-ins and support NW system integration to enhance Soldier capabilities, network performance, and network resiliency.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Test and Evaluation	1.070	1.052	1.139
Description: Test and evaluation efforts include the planning and conduct of combined COE events with Command Post/Mounted Computing Environment, Software Acceptance Testing, System Integration Events, Risk Reduction Events, Security Penetration Testing and Operational Assessment like annual Army Expeditionary Warrior Experiment (AEWE) to gain Soldier Touch point feedback on new capabilities. ***FY 2022 Plans:*** Continue NW system test and 3rd party applications evaluation for technical verification at developmental test events and user verification. Support planned assessment of Integrated Tactical Network (ITN) in ABCT. Conduct yearly environmental testing to characterize commercial & military items, Information Assurance penetration prevention testing of integration of commercial devices, software and accessories into NW baseline. Support Army Expeditionary Warrior Experiment (AEWE) assessment to gain Soldier touch point feedback on dismounted capabilities. ***FY 2023 Plans:*** Conduct NW test and 3rd party applications evaluation for technical verification at developmental test events and user verification. Support NW as a baseline JWA system including: Brigade level support, equipping, training, and spares for NW; conduct yearly environmental testing; and Information Assurance penetration prevention testing for new commercial smart devices, software and accessories. Support Army Expeditionary Warrior Experiment (AEWE) assessments to gain Soldier touch point feedback on emerging dismounted capabilities. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Slight increase due to testing of new ITN capability set.			
Title: Hardware and Software Integration and Evaluation for Capability Improvements	1.420	1.386	1.120
Description: Hardware and Software Integration and Evaluation for Capability Improvements ***FY 2022 Plans:*** Continue to evaluate next future End User Devices (EUD) and associated hardware components to stay aligned with commercial and Army evolving requirements. Provide NW software / hardware updates to support incorporation of 3rd party software applications onto NW EUD platform, and cyber security improvements. Complete integration of Dismounted Assured PNT Gen 1 integration into the NW. Extending Vertical Height Antenna capability to support Battalion comms ranges. Continue to mature			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
PANTHER (SBIR) capability within NW to provide non-GPS based approach for determining approximate position location information. Start DARPA SHARE multi-level security integration on EUD. ***FY 2023 Plans:*** Evaluate next End User Devices (EUD) and associated hardware components to stay aligned with commercial and Army evolving requirements. Provide NW software / hardware updates to support incorporation of 3rd party software applications onto NW EUD platform, Army Interoperability Certification (AIC) and cyber security testing. Support DARPA integration and transition of future technologies. Update software to M/HHCE standards as revised to maintain compliance with COE. Start DARPA SHARE multi-level security integration on EUD. Integrate PANTHER (SBIR) capability within NW to provide non-GPS based approach for determining approximate position location information. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Slight decrease due to reduction in planned improvements and more focus on integration of external programs.			
Title: Software Development & Integration ***Description:*** Funding is provided for the following efforts. ***FY 2022 Plans:*** Continue software development incorporating the Army's Common Operating Environment (COE) Cross-Cutting Capabilities into NW. Continue software updates to ITN component software based on security and operational requirements in support CS23 ITN efforts. Complete Dismounted Assured PNT Gen 1.x plug-ins and Intra Soldier Wireless software manager to support routing of data to various soldier carried devices. Update NW software development kit with added NW functionality. Complete NW tactical cloud IL5 ecosystem (SBU) to IL6 (to handle up to secret) integration efforts to allow for over the air updates to fielded NW systems for STIG compliance, OS, application updates and remote troubleshooting. Transition from S&T, in conjunction with IVAS program, early spirals of Leader Planning & Decision Tools (Semi-Automated Route planning tool) and Remote Aerial Sensing capabilities to further integrate RF Sensing network traffic and visualizing radio frequency emitters in the battlespace NW & IVAS from CDC-Soldier Center Soldier Sensored Soldier Science and Technology TTA. ***FY 2023 Plans:*** Evaluate next generation NW / ATAK map engines and Operating System (OS) trade studies software development efforts with NW. Update NW Software Development Kit (SDK) with new functionality. Continue software upgrades to ITN component software based on security and operational requirements. Continue incorporating the Army's Common Operating Environment (COE) Cross-Cutting Capabilities into NW software to support CS25 ITN. Continue development of NW's next generation Service Oriented Architecture and Tactical Assault Kit plug-ins.	1.433	1.516	1.948

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Complete NW tactical cloud IL5 ecosystem (SBU) to IL6 (to handle up to secret) integration efforts to allow for over the air updates to fielded NW systems for STIG compliance, OS, application updates and remote troubleshooting. Complete transition from S&T, in conjunction with IVAS program, of Leader Planning & Decision Tools (Semi-Automated Route planning tool) and Remote Aerial Sensing capabilities to further integrate RF Sensing network traffic and visualizing radio frequency emitters in the battlespace NW & IVAS from CDC-Soldier Center Soldier Sensored Soldier Science and Technology TTA. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Slight increase due to integration costs associated with an increase of external stakeholders using NW as the common platform.			
Title: Conduct SEPM Support to NW ***Description:*** Conduct Systems Engineering and Program Management Support to Nett Warrior ***FY 2022 Plans:*** Continue to conduct government systems / software engineering and program management support for NW program. Will collect input from Soldiers to improve NW size, weight, power, fightability, safety and effectiveness via surveys. Will manage system configuration, and execute test, development and integration planning including investigation and analysis of emerging innovative commercial technologies to reduce the size, weight, power, cost, increase NW and ITN functionality. ***FY 2023 Plans:*** Continue to conduct government systems / software engineering and program management support for NW program. Will collect input from Soldiers to improve NW and IVAS size, weight, power, fightability, safety and effectiveness via surveys. Will manage system configuration, and execute test, development and integration planning including investigation and analysis of emerging innovative commercial technologies to reduce the size, weight, power, cost, and increase NW and IVAS, and ITN functionality. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Slight decrease due to labor shift supporting integration efforts.	0.750	0.585	0.390
Title: M/HHCE Governance ***Description:*** Development of the M/HHCE standards and M/HHCE governance. ***FY 2022 Plans:***	0.294	0.380	0.492

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Continue to provide Mobile Handheld Computing Environment (M/HHCE) governance and standards development for external program integration with NW and IVAS to eliminate separate handheld devices and reduce Soldier load. Maintain compliance with overarching COE standards. ***FY 2023 Plans:*** Continue to provide Mobile Handheld Computing Environment (M/HHCE) governance and standards development for external program integration with NW and IVAS to eliminate separate handheld devices and reduce Soldier load. Maintain compliance with overarching COE standards to support CS25 ITN. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Slight increase due to labor price fluctuations.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638. ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC ?638. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638.	-	0.186	0.209
Accomplishments/Planned Programs Subtotals	4.967	5.105	5.298

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• R80501: *Ground Soldier System*	137.481	150.244	124.953	-	124.953	172.593	181.607	176.863	176.785	Continuing	Continuing

Remarks

D. Acquisition Strategy

To capitalize on commercial industry's investment in advanced smart device technology as well as innovation and changes within Army, Nett Warrior (NW) and IVAS require annual RDT&E funding for integration and evaluation of new technology. Through this process and at low cost, the Army is able to integrate and evaluate for combat utility the hundreds of millions spent in product development by the major commercial device manufactures. The NW and IVAS programs provide situational awareness and mission command to dismounted combat leaders through secure smart devices, a central power source, cables and the Integrated Tactical Network voice and data transport layers. NW and IVAS fund development and evaluation of new technology and software integration through a combination of competitively awarded contracts and Other Transaction Authorities (OTAs). Various existing follow on procurement contracts are utilized to procure a combination of COTs and

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

GOTs equipment to include supporting services. The NW program completed LRIP/MS C in 2012 followed by two LRIP decisions in 2013-14 in preparation for IOT&E under DOT&E oversight in 4QFY14-1QFY15. This IOT&E event led to an additional NW Low Rate Initial Production (LRIP) decision in 2015 and a Full Rate Production Decision in October 2017. Now in production, NW seeks operational feedback and uses the DevOps process to identify and implement new capabilities. M/HHCE standards are updated annually under the M/HHCE governance process.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering & Program Management Support	Various	Various : Various	7.401	0.750		0.585		0.390		-		0.390	Continuing	Continuing	-
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.186		0.209		-		0.209	Continuing	Continuing	-
		Subtotal	7.401	0.750		0.771		0.599		-		0.599	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware/Software Integration & Evaluation	Various	Various : Various	13.276	1.420		1.386		1.120		-		1.120	Continuing	Continuing	-
MHH Governance	MIPR	Various : Various	10.351	0.294		0.380		0.492		-		0.492	Continuing	Continuing	-
		Subtotal	23.627	1.714		1.766		1.612		-		1.612	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development and Integration	Various	Various : Various	5.548	1.433		1.516		1.948		-		1.948	Continuing	Continuing	-
		Subtotal	5.548	1.433		1.516		1.948		-		1.948	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	Various : Various	6.294	1.070		1.052		1.139		-		1.139	Continuing	Continuing	-
		Subtotal	6.294	1.070		1.052		1.139		-		1.139	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.870	4.967		5.105		5.298		-		5.298	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

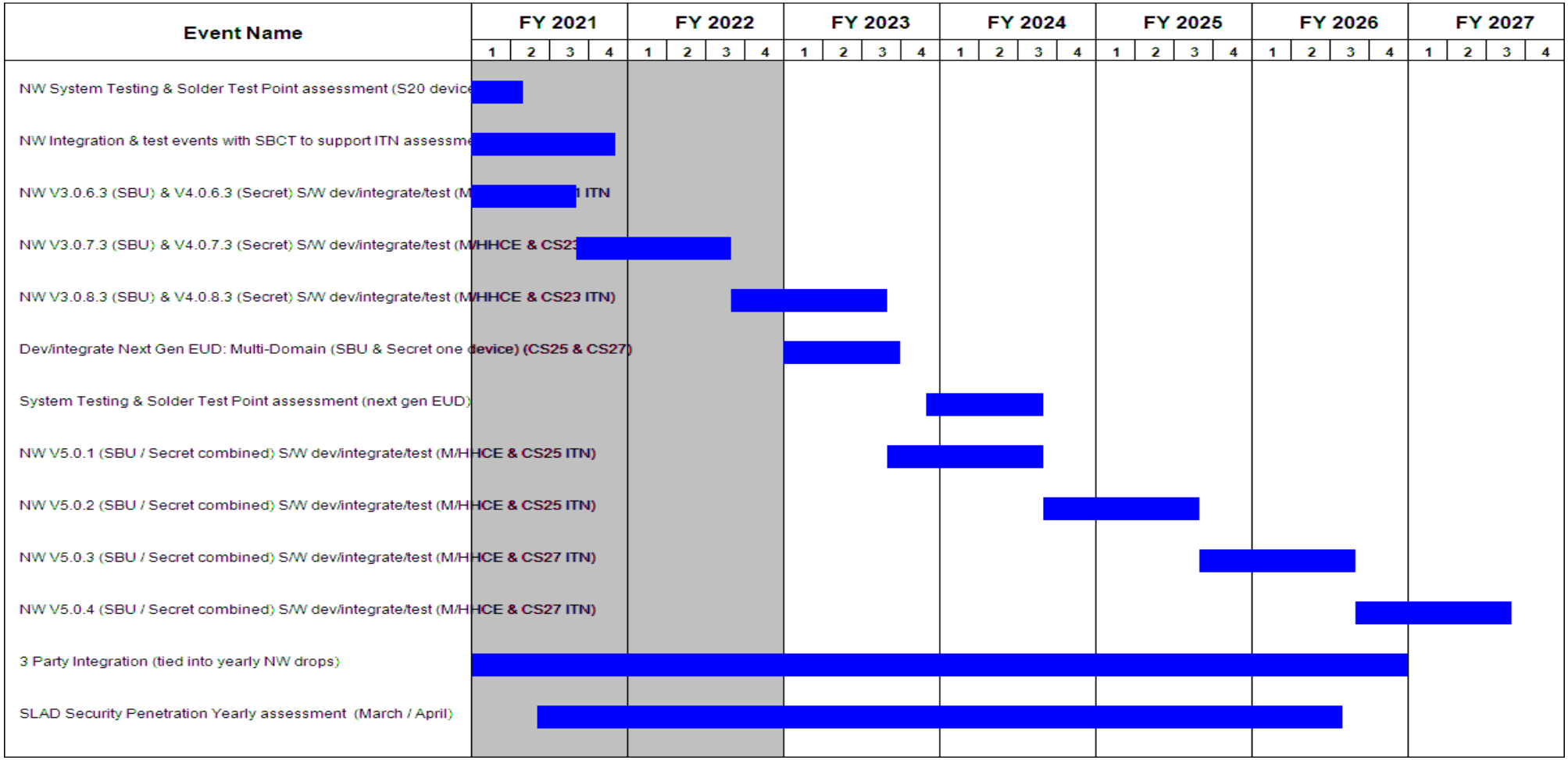


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

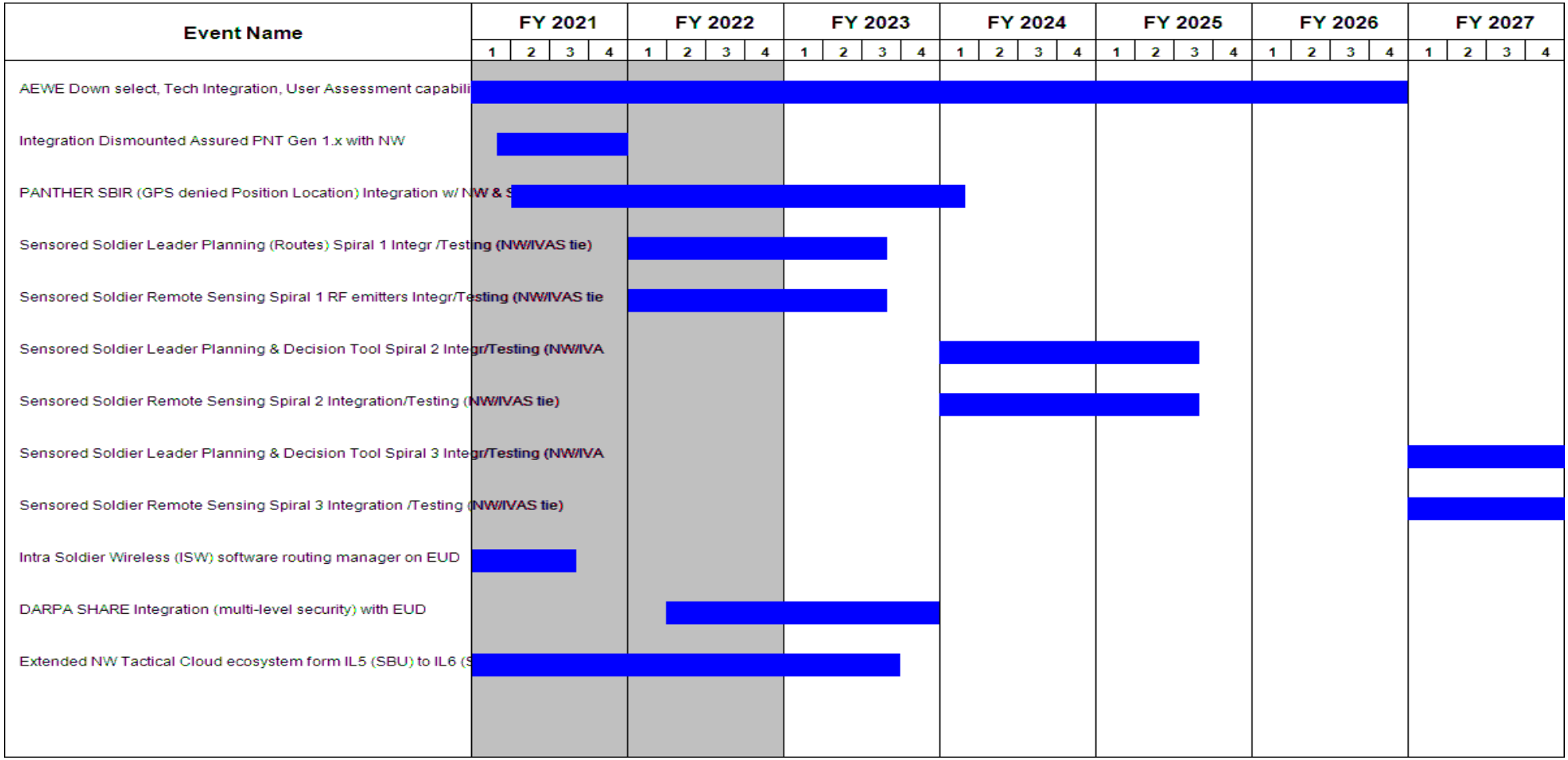


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EQ8 / *Mobile/Handheld Computing Environment (M/HHCE)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NW V3.0.5.3 (SBU) & V4.0.5.3 (Secret) S/W dev/integrate/test (M/HHCE & CS21 ITN)	1	2020	3	2020
Galaxy S20 TE EUD & Case (support part CS21 & CS23): Development / integration	2	2020	4	2020
NW System Testing & Solder Test Point assessment (S20 device)	1	2021	1	2021
NW Integration & test events with SBCT to support ITN assessment	4	2020	4	2021
NW V3.0.6.3 (SBU) & V4.0.6.3 (Secret) S/W dev/integrate/test (M/HHCE & CS21 ITN	3	2020	3	2021
NW V3.0.7.3 (SBU) & V4.0.7.3 (Secret) S/W dev/integrate/test (M/HHCE & CS23 ITN)	3	2021	3	2022
NW V3.0.8.3 (SBU) & V4.0.8.3 (Secret) S/W dev/integrate/test (M/HHCE & CS23 ITN)	3	2022	3	2023
Dev/integrate Next Gen EUD: Multi-Domain (SBU & Secret one device) (CS25 & CS27)	1	2023	3	2023
System Testing & Solder Test Point assessment (next gen EUD)	4	2023	3	2024
NW V5.0.1 (SBU / Secret combined) S/W dev/integrate/test (M/HHCE & CS25 ITN)	3	2023	3	2024
NW V5.0.2 (SBU / Secret combined) S/W dev/integrate/test (M/HHCE & CS25 ITN)	3	2024	3	2025
NW V5.0.3 (SBU / Secret combined) S/W dev/integrate/test (M/HHCE & CS27 ITN)	3	2025	3	2026
NW V5.0.4 (SBU / Secret combined) S/W dev/integrate/test (M/HHCE & CS27 ITN)	3	2026	3	2027
3 Party Integration (tied into yearly NW drops)	1	2020	4	2026
SLAD Security Penetration Yearly assessment (March / April)	2	2021	3	2026
AEWE Down select, Tech Integration, User Assessment capability (Yearly)(May-Feb)	3	2020	4	2026
Integration Dismounted Assured PNT Gen 1.x with NW	1	2020	4	2021
PANTHER SBIR (GPS denied Position Location) Integration w/ NW & Soldier Touch Pt	2	2021	1	2024
Sensored Soldier Leader Planning (Routes) Spiral 1 Integr /Testing (NW/IVAS tie)	1	2022	3	2023
Sensored Soldier Remote Sensing Spiral 1 RF emitters Integr/Testing (NW/IVAS tie	1	2022	3	2023
Sensored Soldier Leader Planning & Decision Tool Spiral 2 Integr/Testing (NW/IVA	1	2024	3	2025
Sensored Soldier Remote Sensing Spiral 2 Integration/Testing (NW/IVAS tie)	1	2024	3	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Sensored Soldier Leader Planning & Decision Tool Spiral 3 Integr/Testing (NW/IVA	1	2027	3	2028
Sensored Soldier Remote Sensing Spiral 3 Integration /Testing (NW/IVAS tie)	1	2027	3	2028
Intra Soldier Wireless (ISW) software routing manager on EUD	1	2021	3	2021
DARPA SHARE Integration (multi-level security) with EUD	2	2022	4	2023
Extended NW Tactical Cloud ecosystem form IL5 (SBU) to IL6 (Secret)	1	2021	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*				Project (Number/Name) ER9 / *Expeditionary Army Command Post*			
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
ER9: *Expeditionary Army Command Post*	-	43.803	51.003	31.483	-	31.483	43.352	-	-	-	0.000	169.641
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Command Post Integrated Infrastructure (CPI2) is executed in a two Increment approach. Increment 0 scope is aligned to the Command Post (CP) Directed Requirement (DR) signed 14 Dec 2017. Increment 0 is to develop a CPI2 design on the Family of Medium Tactical Vehicles (FMTV) based platforms and experiment with a Stryker based, Mobile Command Group. Increment 1 scope is aligned to the CPI2 CDD and extends CPI2 capability designs onto the Stryker, AMPV, and JLTV platforms.

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network, Modernization Priority 1. This funding line is directly aligned to the Army Network Modernization Strategy Line of Effort (LOE) #4 Command Post.

The Command Post Integrated Infrastructure (CPI2) program addresses the Army requirements for more mobile, scalable, interoperable, and agile command posts. Currently fielded command posts are too large and take too long to setup and teardown making them vulnerable to near peer detection and targeting technologies. By integrating mission command warfighting functions onto formation appropriate vehicle platforms, a dispersed command post construct will enable the battle staff to blend in with the overall maneuver formation while giving the commander the ability to synchronize the close fight on the move. This dispersed mobile command post consists of Mission Command Platforms (MCPs) and Command Post Support Vehicles (CPSVs). The MCP is a formation appropriate vehicle that provides digital workstations for all mission command warfighting functions. The CPSV is the hub of the dispersed command post; it hosts mission command servers, radios, local area network components and a secure wireless capability. Specific to Corps/Div, CPI2 will provide a Mobile Command Group (MCG) hosted on formation appropriate platforms for Corps and Div. The MCG provides Commanders and Staff with the ability to employ high priority functions while on the move.

Increment 0 experimentation will design and prototype a MCP and CPSV capability for two Brigade Combat teams (BCT's), a Division Main, and a Division MCG. Increment 0 focuses on integrating CPI2 MCP and CPSV capability on the Family of Medium Tactical Vehicles (FMTV) platforms and shelter systems to provide mobile capability and increased survivability to the Command Post. The MCP and CPSV prototypes were evaluated and tested via 3 Operational Assessments which provided soldier feedback and data to inform an Increment 0 Milestone C decision for a limited production set of 5 BCTs. Division Main and Division MCG tests will inform Inc 1 designs and potentially drive future requirement updates as how best to execute CPI2 at the Division Main.

Increment 1 initiated at Milestone B (ADM signed June 2021); with a focus on the development and prototype/testing of the MCP/CPSV/MCG for formation-appropriate platforms (Stryker, AMPV and JLTV) that were not addressed in Increment 0. These combined capabilities will enable the Army to employ command posts across the operational spectrum, from early entry to major combat operations that will resolve current command post issues with set up and tear down, survivability, mobility, suitability and footprint.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*

FY 2023 funding will support continuing efforts for the design, development, prototyping, and testing of CPI2 MCP/CPSV capabilities on or in formation appropriate platforms for Stryker, AMPV and JTLV. Funding also provides for acquisition of equipment to support product development, testing, logistical support and program management.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Product Development	34.714	38.899	19.882
Description: Includes the costs for design/integration/fabrication and prototyping efforts to address capability gaps identified in current Army command post formations. Also includes equipment and ancillary items necessary to prototype a distributed CPI2 implementation utilizing the Mission Command Platform, Command Post Support Vehicle and Mobile Command Group.			
FY 2022 Plans: FY 2022 funds continue design engineering, and prototype development of Mission Command Platforms and Command Post Support Vehicles for formation appropriate platforms (APMV, JLTV, Stryker) by executing funds on their existing platform contracts. FY22 also funds engineering change proposals for updates to improve CPI2 designs based on soldier feedback from Operational Assessments. This funding will be executed by Program Executive Office Command, Control, Communications - Tactical (PEO-C3T).			
FY 2023 Plans: FY 2023 funds executed the design engineering, and prototype development of Mission Command Platforms and Command Post Support Vehicles for formation appropriate platforms (APMV, JLTV, Stryker) through their existing platform contracts.			
FY 2022 to FY 2023 Increase/Decrease Statement: Decrease from FY22 to FY23 is a result of not having to buy Stryker prototype vehicles in FY23.			
Title: Systems Test and Evaluation	3.930	3.502	4.646
Description: Costs required for test activities to inform CPI2 solution set.			
FY 2022 Plans: FY22 funds provide for safety confirmation for platforms and shelter systems, testing for the Towable Expeditionary Shelter System (TESS), test articles and test planning. This funding will be executed by Program Executive Office Command, Control, Communications -Tactical (PEO-C3T).			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Conduct test events for formation appropriate vehicles (APMV, JLTV). Conduct Developmental Testing sessions to determine the preparedness and investigate potential issues for the Limited User Test (LUT) event. Conduct the Safety Testing to receive Material Release and support the LUT Event on FMTV based MCP, CPSV to inform a Milestone C in FY24. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase is due to additional test events in FY23 to include Safety Confirmation, Developmental Test and a Limited User Test (LUT) which will include testing CPI2 capability with an Army Brigade Combat Team.			
Title: Support Costs ***Description:*** Program costs for training and development of data packages. ***FY 2022 Plans:*** Funding supports updates necessary to technical data packages and training for test events as well as initial design updates to Technical Data Packages for the platforms in the CPI2 formations. Includes retrograde of the two test units. This funding will be executed by Program Executive Office Command, Control, Communications - Tactical (PEO-C3T). ***FY 2023 Plans:*** Funding supports updates necessary to technical data packages, training for test events, as well as maintenance for the platforms in the CPI2 Division formation. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Program increase is aligned to project schedules as vehicle development shifts from design to logistical documentation.	0.963	2.351	3.175
Title: Program Office Management ***Description:*** Contractor/Matrix Labor support and program travel. ***FY 2022 Plans:*** Contract and Matrix personnel to support CPI2 in achieving mission requirements to include managing multiple design/prototyping efforts, test events and training. This funding will be executed by Program Executive Office Command, Control, Communications - Tactical (PEO-C3T). ***FY 2023 Plans:*** Contract and Matrix personnel to support CPI2 in achieving mission requirements to include managing multiple design/prototyping efforts, test events and training. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	4.196	4.388	3.780

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Decrease is driven by a decrease in program design and development in FY23.			
Title: SBIR/STTR Transfer	-	1.863	-
Description: Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638			
Accomplishments/Planned Programs Subtotals	43.803	51.003	31.483

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• B29801: *CPI2*	23.000	49.410	60.455	-	60.455	77.042	92.383	92.581	92.540	Continuing	Continuing

Remarks

D. Acquisition Strategy

The CPI2 Materiel Development Decision (MDD) Acquisition Decision Memorandum (ADM) was signed on 21 June 2018 and directs CPI2 to be executed in two Increments. Increment 0 will deliver an initial capability of CPI2 for 5 Brigade Combat Teams (BCT) in alignment with a signed Directed Requirement (Dec 2017); utilizing the Army Family of Medium Tactical Vehicles (FMTV) as the primary mover. Increment 1 will expand on Inc 0 to deliver CPI2 to to a select 86 Army units per approved Capability Development Document (CDD) signed April 2020. Inc 1 expands CPI2 capability to Stryker, AMPV and JLTV vehicle platforms.

Increment 0 development is focused on the design/development of a Mission Command Platform (MCP) and a Command Post Support Vehicle (CPSV) on Family of Medium Tactical Vehicles (FMTV) platforms and associated shelter systems to develop a more mobile, survivable command post. The capability developed will address a Brigade Combat Team (BCT), a Division Main and a platform based Mobile Command Group (MCG) to one Division. Increment 0 prototypes and integrates available Commercial Off The Shelf (COTS), as well as Government Programs of Record (PoR) equipment, that provide mission command and communications functions within the command post. Increment 0 is working with the Government and Industry to capitalize on experiences with mobile Command Posts (CP). CPI2 Increment 0 developed BCT #1 through experimentation conducted with Combat Capabilities Development Center (CCDC) via a Functional Support Agreement (FSA). CPI2 executed a full and open competition under Other Transaction Authority (OTA) to award a contract for design and prototyping the MCP/CPSV for BCT #2. The government and industry led designs for the FMTV based MCP/CPSV were tested through three Operational Assessments. The results from these events provide data necessary to inform an Increment 0 Milestone C decision (FY22), which will then authorize production of 3 new BCT's and any necessary updates/retrofit to the first two experimental units to satisfy the scope of the CP DR to deliver 5 BCTs of CPI2 capability.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*

The Division Main effort is executed via an Indefinite Delivery Indefinite Quantity (IDIQ) contract. CPI2 development with a Stryker based Mobile Command Group (MCG) to 1 Division via an FSA with Project Manager (PM) Stryker Brigade Combat Team (SBCT). The Division Main and MCG serve to provide a baseline for user inputs for any future CPI2 CDD updates. Any production decisions for Division and MCG would be addressed in the Increment 1 Milestone C (FY24).

Increment 1 will execute requirements of the CDD to replace designated legacy command post systems at Corps, Division, Brigades, Battalions and select Multi-Functional Support Brigades (MFSB). The approved Increment 1 Milestone B (Acquisition Decision Memorandum signed June 2021) authorized CPI2 to begin prototype development not addressed in Increment 0; specifically for design and test of Stryker, JLTV and AMPV vehicle platforms for formation appropriate MCP, CPSV and MCG. CPI2 will award funds on existing Programs of Record (PoR) contracts for the design/development of these platforms.

The Increment 1 Milestone C decision will initiate LRIP production and fielding of CPI2 FMTV platforms and shelter systems. CPI2 will pursue a full and open award to contract with industry for the engineering, installation and production of the MCP/CPSV/MCG solution for vehicle platforms and shelter systems. An operational test will be conducted to asses CPI2 on the FMTV platform prior to a Full Rate Production decision. CPI2 will be responsible for delivering CPI2 equipment to the vendor for installation. Vehicle platforms will be supplied to CPI2; funded and provided by the existing Army vehicle PoR contracts. Due to the differing durations for development of the formation appropriate platforms (Stryker, AMPV, JLTV); each PoR will assess the CPI2 solution via their individual Functional Qualification Test (FQT). Upon successful test, CPI2 will coordinate with the Milestone Decision Authority (MDA) to request authority to fund the CPI2 installation vendor via Engineering Change Proposal (ECP) to accommodate installation on the Stryker, AMPV, and JLTV platforms.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Civilian Labor	Allot	PM MC : Aberdeen Proving Ground MD	0.108	-		-		-		-		-	Continuing	Continuing	Continuing
SETA Support	MIPR	CACI : Aberdeen Proving Ground, MD	2.620	1.964	Nov 2020	-		-		-		-	0.000	4.584	-
SETA Support	MIPR	Booz Allen Hamilton : Aberdeen Proving Ground, MD	-	-		2.063	Feb 2022	1.780	Dec 2022	-		1.780	Continuing	Continuing	Continuing
Matrix Support	MIPR	Various : Aberdeen Proving Ground, MD	3.739	2.232	Nov 2020	2.325	Nov 2021	2.000	Dec 2022	-		2.000	Continuing	Continuing	Continuing
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		1.863		-		-		-	0.000	1.863	-
		Subtotal	6.467	4.196		6.251		3.780		-		3.780	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BCT 1 Design/Fabrication/ Installation	MIPR	CCDC-C5ISR : Aberdeen Proving Ground, MD	7.809	1.624	Dec 2020	-		-		-		-	Continuing	Continuing	Continuing
BCT 2 Design/Fabrication/ Installation	C/FFP	ELBIT : Ft.Worth, Texas	9.757	10.363	Nov 2020	-		-		-		-	Continuing	Continuing	Continuing
Division Design/ Fabrication/Installation	C/IDDQ	SERCO (Formerly BRTRC) : Ft.Bliss, Texas	5.340	3.723	Nov 2020	-		-		-		-	Continuing	Continuing	Continuing
Mobile Command Group Experimentation	MIPR	PM SBCT : Warren, MI	0.425	1.116	Feb 2021	-		-		-		-	Continuing	Continuing	Continuing
CPI2 Core Kits	Various	Multiple : Multiple	9.670	4.689	Mar 2021	1.150	Dec 2021	-		-		-	Continuing	Continuing	-
Rigid Wall Shetler Design	MIPR	CCDC-C5ISR : APG, MD	-	1.483	May 2021	-		-		-		-	Continuing	Continuing	Continuing
Ancillary Items	MIPR	Various : Various	4.638	1.175	Oct 2020	0.864	Dec 2021	-		-		-	Continuing	Continuing	Continuing
Engineering Changes	Option/ FFP	ELBIT : Ft.Worth, Texas	-	5.440	Jun 2021	1.322	Dec 2021	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Stryker MCP Design/ Development	Allot	PM SBCT : Detroit, MI	-	4.300	Jul 2021	25.681	May 2022	12.483	Jan 2023	-		12.483	Continuing	Continuing	Continuing
AMPV MCP Design/ Development	Allot	PM AMPV : Detroit Aresnal, MI	-	-		4.552	Mar 2022	5.826	Jan 2023	-		5.826	Continuing	Continuing	Continuing
JLTV MCP/CPSV Design/ Development	Allot	PM JLTV : Detroit , MI	-	-		5.330	Apr 2022	1.573	Jan 2023	-		1.573	Continuing	Continuing	Continuing
TESS Design/ Development (Medium/ Large)	Allot	PdM FSS : Natick, MA	0.954	0.801	May 2021	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	38.593	34.714		38.899		19.882		-		19.882	Continuing	Continuing	N/A

Remarks

1) CPI2 funds existing contracts managed by Stryker, AMPV and JLTV to execute design/development/vehicle prototype development.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Tech Manuals/Training Development Packages	Various	Various : Various	3.025	0.963	Mar 2021	1.001	May 2022	1.320	Dec 2022	-		1.320	Continuing	Continuing	Continuing
Maintenance	Option/ Various	Various : Ft Bliss, TX	-	-		1.350	Dec 2021	1.855	Dec 2022	-		1.855	0.000	3.205	-
		Subtotal	3.025	0.963		2.351		3.175		-		3.175	Continuing	Continuing	N/A

Remarks

1) Tech Manuals increase is driven by Stryker, AMPV and JLTV platform required updates to tech manuals, training and maintenance manuals based on the CPI2 designs.
2) Contract support and maintenance for the Division unit level experimentation and Mobile Command Group for continuous feedback in the try, buy and assess model.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) ER9 / *Expeditionary Army Command Post*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Test and Evaluation	MIPR	Various : Various	0.740	3.930	Nov 2020	3.502	May 2022	4.646	Feb 2023	-		4.646	Continuing	Continuing	Continuing
		Subtotal	0.740	3.930		3.502		4.646		-		4.646	Continuing	Continuing	N/A

Remarks

1) System Test and Evaluation increase is driven by an increase in the number of test events in FY23. Events include the LUT, Development Test and Safety Confirmation Test.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	48.825	43.803		51.003		31.483		-		31.483	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*

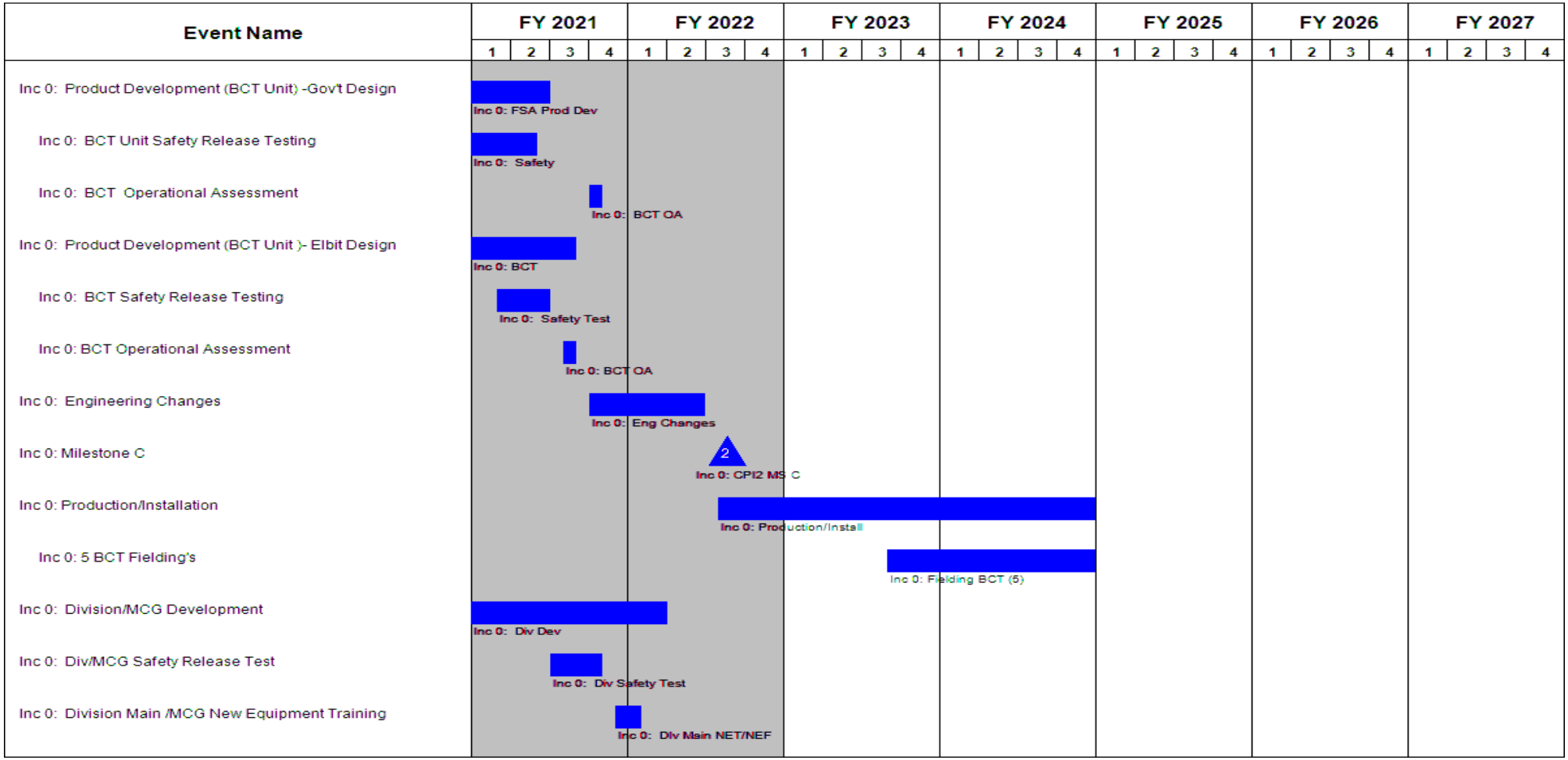
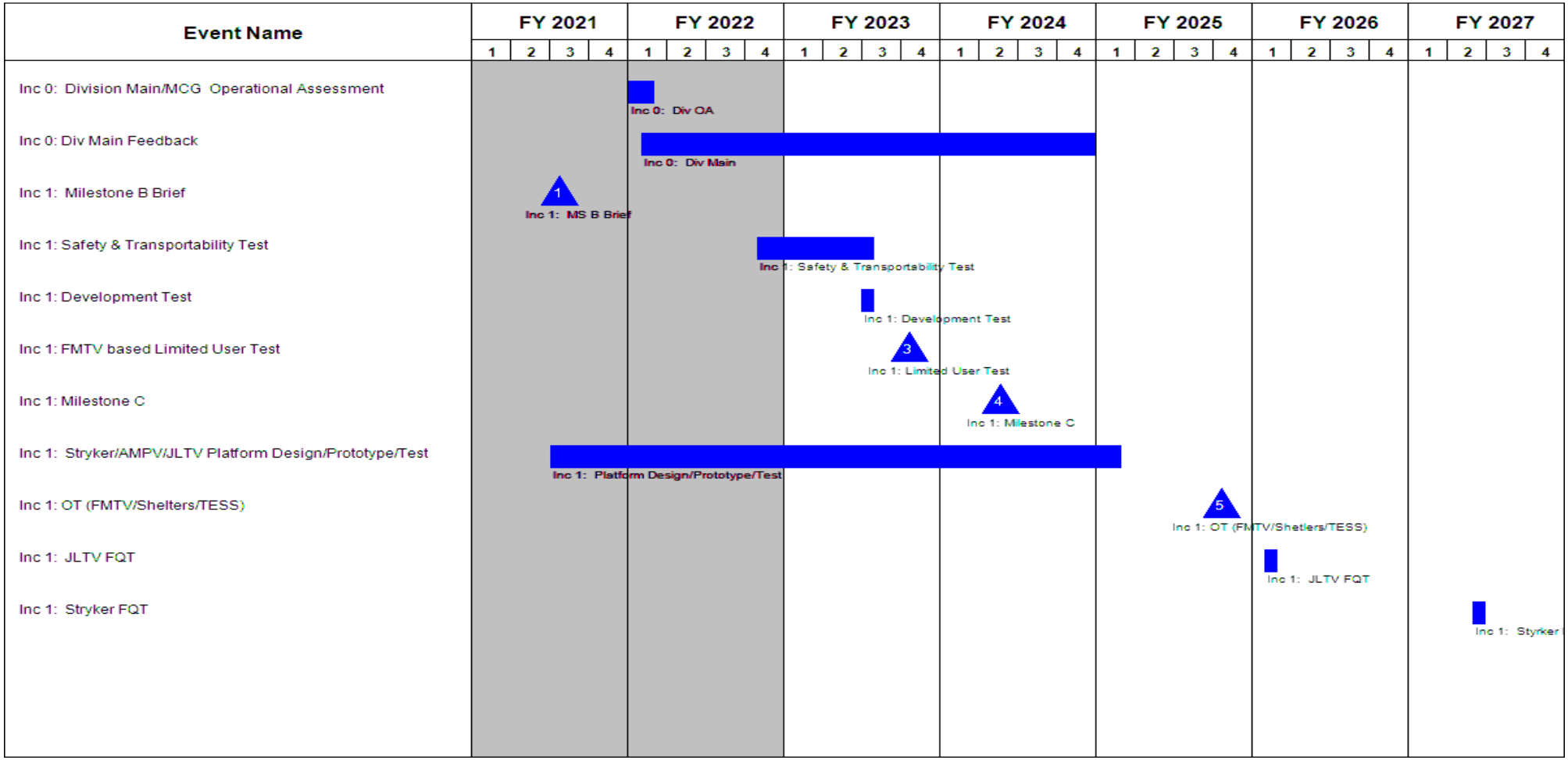


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*



Note

1) Increment 0 Milestone C is scheduled for May 2022. This is a slip from the projection of 1QFY22 that was presented in PB22.
2) FY23 Risk Reduction Event is now formally called the Limited User Test (LUT) as it is a feeder to the Inc 1 Milestone C.

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** ER9 / *Expeditionary Army Command Post*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Command Post Directed Requirement Signed	1	2018	1	2018
CPI2 MDD	3	2018	3	2018
Inc 0: MS A	2	2019	2	2019
Inc 0: Product Development (BCT Unit) -Gov't Design	2	2019	2	2021
Inc 0: BCT Unit Safety Release Testing	4	2020	2	2021
Inc 0: BCT Operational Assessment	4	2021	4	2021
Inc 0: Product Development (BCT Unit)- Elbit Design	4	2019	3	2021
Inc 0: BCT Safety Release Testing	1	2021	2	2021
Inc 0: BCT Operational Assessment	3	2021	3	2021
Inc 0: Engineering Changes	4	2021	2	2022
Inc 0: Milestone C	3	2022	3	2022
Inc 0: Production/Installation	3	2022	4	2024
Inc 0: 5 BCT Fielding's	3	2023	4	2024
Inc 0: Division/MCG Development	4	2019	1	2022
Inc 0: Div/MCG Safety Release Test	3	2021	4	2021
Inc 0: Division Main /MCG New Equipment Training	4	2021	1	2022
Inc 0: Division Main/MCG Operational Assessment	1	2022	1	2022
Inc 0: Div Main Feedback	1	2022	4	2024
Inc 1: Capablity Development Document Approved	3	2020	3	2020
Inc 1: Milestone B Brief	3	2021	3	2021
Inc 1: Safety & Transportability Test	4	2022	3	2023
Inc 1: Development Test	3	2023	3	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Inc 1: FMTV based Limited User Test	4	2023	4	2023
Inc 1: Milestone C	2	2024	2	2024
Inc 1: Stryker/AMPV/JLTV Platform Design/Prototype/Test	3	2021	1	2025
Inc 1: OT (FMTV/Shelters/TESS)	4	2025	4	2025
Inc 1: JLTV FQT	1	2026	1	2026
Inc 1: Stryker FQT	2	2027	2	2027

Note

1) Increment 0 Milestone C is scheduled for May 2022. This is a slip from the projection of 1QFY22 that was presented in PB22.
2) FY23 Risk Reduction Event is now formally called the Limited User Test (LUT) as it is a feeder to the Inc 1 Milestone C.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EW3 / *Unit Task Reorganization (UTR) Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
EW3: *Unit Task Reorganization (UTR) Development*	-	19.027	9.346	13.814	-	13.814	14.183	14.355	14.359	14.498	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line provides support to the Army's Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team (CFT) capability set approach to achieve the Army's Network Modernization strategy and initiatives.

UTR supports the Army Network Plan Framework objective to deliver a Standards Based Network Architecture. This will enable the modernization of the Mission Command Network through the coordination of a common set of network operations tools and infrastructure development supporting the unit communication staff's ability to Manage the Network through the (1) development of an integrated planning tool suite to improve Signal Soldiers ability to plan and develop configurations for upcoming operations and deployments; (2) development of tools and technology that provide a means to deliver configurations with little to no manual involvement by the Soldier and (3) replacement of stove-piped management systems with integrated tools that provide a consolidated, as well as detailed, view of the network and its components.

The total cost of the Unified Network Operations (UNO) Middle Tier of Acquisition (MTA) effort is $84.352 million RDT&E from FY19 to FY24. The remainder (FY23-24) of the $31.397 million for UNO MTA is fully funded across the Future Years Defense Program (FYDP). In accordance with the National Defense Authorization Act (NDAA) policy for MTA funding, UNO MTA will leverage funds from 654818/EW3 and 654818/EK9 to achieve its required funding levels.

FY 2023 UTR funding will be used to continue development of network components that support centralized data, security, and information exchanges; continue development of Radio Planning capabilities in order to plan and create configuration files for emerging Integrated Tactical Network (ITN) radios and waveforms; continue development of network device and provisioning systems; and continue the development of a network manager that monitors and displays network health status, performance, location and security to local operator.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Network Provisioning	5.649	-	-
Description: UTR is implementing tools and technology to reduce the amount of time and troops required to provision network devices with configurations developed during the planning process. This provides a means to deliver configurations without requiring manual involvement by the Soldier, and for devices to report configuration and operational status in accordance with the Standards Based Architecture. The Rapid Provisioning Systems (RPS) Master Node installation in the Mission Command Support Center (MCSC) in FY 20 provided Integrated global patch management capabilities into across Brigade Combat Teams (BCTs).			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EW3 / *Unit Task Reorganization (UTR) Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Network Management	12.620	8.720	13.331

Description: UTR introduces improvements to the way the network is managed, reducing closed management systems and replacing them with integrated tools that provide a consolidated, as well as detailed, view of the network and its components.

Integrated management of Transportable Tactical Command Communications (T2C2)- Heavy and Lite, Satellite Transportable Terminal (STT), Tactical Communications Node (TCN)-Lite, Scalable Class of Unified Terminals (SCOUT) was provided as part of the Network Manager (NOMS) and deployed in FY 20 to Expeditionary Signal Battalion (ESB?s) and part of CS 21. The initial Tactical Radio Integration Kit (TRIK) Management interface was developed and provided in CS 21 as part of Integrated Tactical Network (ITN).

FY 2022 Plans:
- Complete delivery of vendor neutral Application Programming Interface (API) that supports network health status across warfighting applications and S6 tools & services as well as communication across various services.
- Continue development of network components that support centralized data, security, and information exchanges, enabling Signal Soldier activities.
- Implementation of Bandwidth efficient & NSA approved Over the Network and Over the Air capabilities to provision and reconfigure tactical radios that support Integrated Visual Augmentation System (IVAS), Hand Held Computing Environment (HH CE) & Mounted Computing Environment (MCE).
- Continue product development of Network Management functionality enabling the ability to manage and troubleshoot the network devices that comprise the Tactical Network, monitor nodes for network health status, performance, location, and security, in addition to displaying monitored data to the local operator. Extend management interfaces for services (Network Manager & Battalion (BN) and Below Manager).
- Continue development of the Tactical radio planner to include planning for additional waveforms, Demand Assigned Multiple Access (DAMA), Satellite Communications (SATCOM), Planning.
- Integration of Tactical Network Initialization & Configuration (TNIC) Initialization Process through Initialization Tool Suite.
- Continue development of SATCOM planner as replacement for the Tactical Network Toolkit (TNT) Network Management System (NMS) planner for SATCOM systems targeting deployment in CS 23.
- Continue development of consolidated Satellite Access Requests & receipt of Satellite Access Authorizations.

FY 2023 Plans:
- Complete delivery of vendor neutral Application Programming Interface (API) that supports network health status across warfighting applications and S6 tools & services as well as communication across various services.
- Continue development of network components that support centralized data, security, and information exchanges, enabling Signal Soldier activities.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EW3 / *Unit Task Reorganization (UTR) Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
- Implementation of Bandwidth efficient & NSA approved Over the Network and Over the Air capabilities to provision and reconfigure tactical radios that support Integrated Visual Augmentation System (IVAS), Hand Held Computing Environment (HH CE) & Mounted Computing Environment (MCE). - Continue product development of Network Management functionality enabling the ability to manage and troubleshoot the network devices that comprise the Tactical Network, monitor nodes for network health status, performance, location, and security, in addition to displaying monitored data to the local operator. Extend management interfaces for services (Network Manager & Battalion (BN) and Below Manager (INB2)). - Continue development of the Tactical radio planner to include planning for additional waveforms, Demand Assigned Multiple Access (DAMA), Satellite Communications (SATCOM), Planning. - Integration of Tactical Network Initialization & Configuration (TNIC) Initialization Process through Initialization Tool Suite. - Continue development of SATCOM planner as replacement for the Tactical Network Toolkit (TNT) Network Management System (NMS) planner for SATCOM systems targeting deployment in CS 23. - Continue development of consolidated Satellite Access Requests & receipt of Satellite Access Authorizations. - Analysis and studies of network planning/management/cybersecurity capabilities. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY22 to FY23 increase is a result of expanded development on Network Management and Planning capabilities.			
Title: System of Systems Engineering and Portfolio Management ***Description:*** Systems engineering and program management support to include development and maintenance of the NetOps architecture, Systems Engineering Plan, Risk Management Plan, Rapid Prototyping, IPT Management, Requirements Engineering, Integrated Master Schedule, and budget formulation and execution. ***FY 2022 Plans:*** Continue Systems of Systems Engineering and program management across NetOps portfolio.. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 System of Systems Engineering and Portfolio Management funding has been moved to more accurately reflect UNO Program Management requirements.	0.758	0.283	-
Title: Program Management ***Description:*** The UNO Program Office will support the continuation of NetOps component development. The UNO Program Office will also support the transition of UNO MTA RP to a suitable acquisition pathway for software capability fielding in FY2024 to meet Unified Network requirements. ***FY 2023 Plans:***	-	-	0.483

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EW3 / *Unit Task Reorganization (UTR) Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
The UNO Program Office will support the continuation of NetOps component development. The UNO Program Office will also support the transition of UNO MTA RP to a suitable acquisition pathway for software capability fielding in FY2024 to meet Unified Network requirements. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase to Program Management Support reflects UNO MTA management requirements and supports the transition of UNO MTA RP to a suitable acquisition pathway for software capability fielding in FY2024 to meet Unified Network requirements.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	0.343	-
Accomplishments/Planned Programs Subtotals	19.027	9.346	13.814

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• EK9: *TACTICAL NETWORK OPERATIONS AND MANAGEMENT*	3.252	3.366	3.400	-	3.400	-	-	-	-	0.000	10.018

Remarks

In accordance with the National Defense Authorization Act (NDAA) policy for MTA funding, UNO MTA leverages funds from Unit Task Reorganization (UTR) 654818/EW3 and Tactical Networks Operations Management (TNOM) 654818/EK9 to achieve its required funding levels.

D. Acquisition Strategy

Unit Task Reorganization (UTR) is an overarching effort that supports the establishment of a standards-based network architecture and integration of requirements across multiple efforts in the tactical network. UTR resources are applied directly to current products which are modified through Engineering Change Proposals and Modified Work Orders to comply with network standards. This enables current systems to share the information, reducing time and task for soldiers as well as new systems to access the network. Efforts are enduring to react to evolving prioritization of requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EW3 / *Unit Task Reorganization (UTR) Development*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	TBD	Various : Various	-	-		-		0.483		-		0.483	Continuing	Continuing	Continuing
SBIR/STTR	TBD	TBD : TBD	-	-		0.343		-		-		-	0.000	0.343	-
		Subtotal	-	-		0.343		0.483		-		0.483	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network Provisioning	C/IDIQ	Microsoft : Redmond, WA	12.386	1.000	Nov 2020	-		-		-		-	0.000	13.386	-
Network Provisioning	MIPR	Matrix Organizations : APG MD	6.983	2.665	Nov 2020	-		-		-		-	0.000	9.648	-
Network Provisioning	FFRDC	MITRE : Mclean, VA	4.852	1.393	Oct 2020	-		-		-		-	0.000	6.245	-
Network Provisioning	C/CPFF	Telesis : Mclean, VA	6.957	0.321	Mar 2021	-		-		-		-	0.000	7.278	-
Network Provisioning	Option/ CPAF	ESP : APG, MD	0.654	0.370	Nov 2020	-		-		-		-	0.000	1.024	-
Network Management	C/FFP	Various : TBD	34.881	12.120	Apr 2021	8.720	Jan 2022	13.331	Jan 2023	-		13.331	Continuing	Continuing	Continuing
Network Management	MIPR	C5ISR : APG, MD	0.467	0.400	Nov 2020	-		-		-		-	0.000	0.867	-
		Subtotal	67.180	18.269		8.720		13.331		-		13.331	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System of Systems Engineering and Portfolio Management	C/CPAF	Various : APG MD	3.115	0.758	Nov 2020	0.283	Feb 2022	-		-		-	0.000	4.156	-
		Subtotal	3.115	0.758		0.283		-		-		-	0.000	4.156	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604818A / *Army Tactical Command & Control Hardware & Software*	Project (Number/Name) EW3 / *Unit Task Reorganization (UTR) Development*	

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	70.295	19.027		9.346		13.814		-		13.814	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EW3 / *Unit Task Reorganization (UTR) Development*

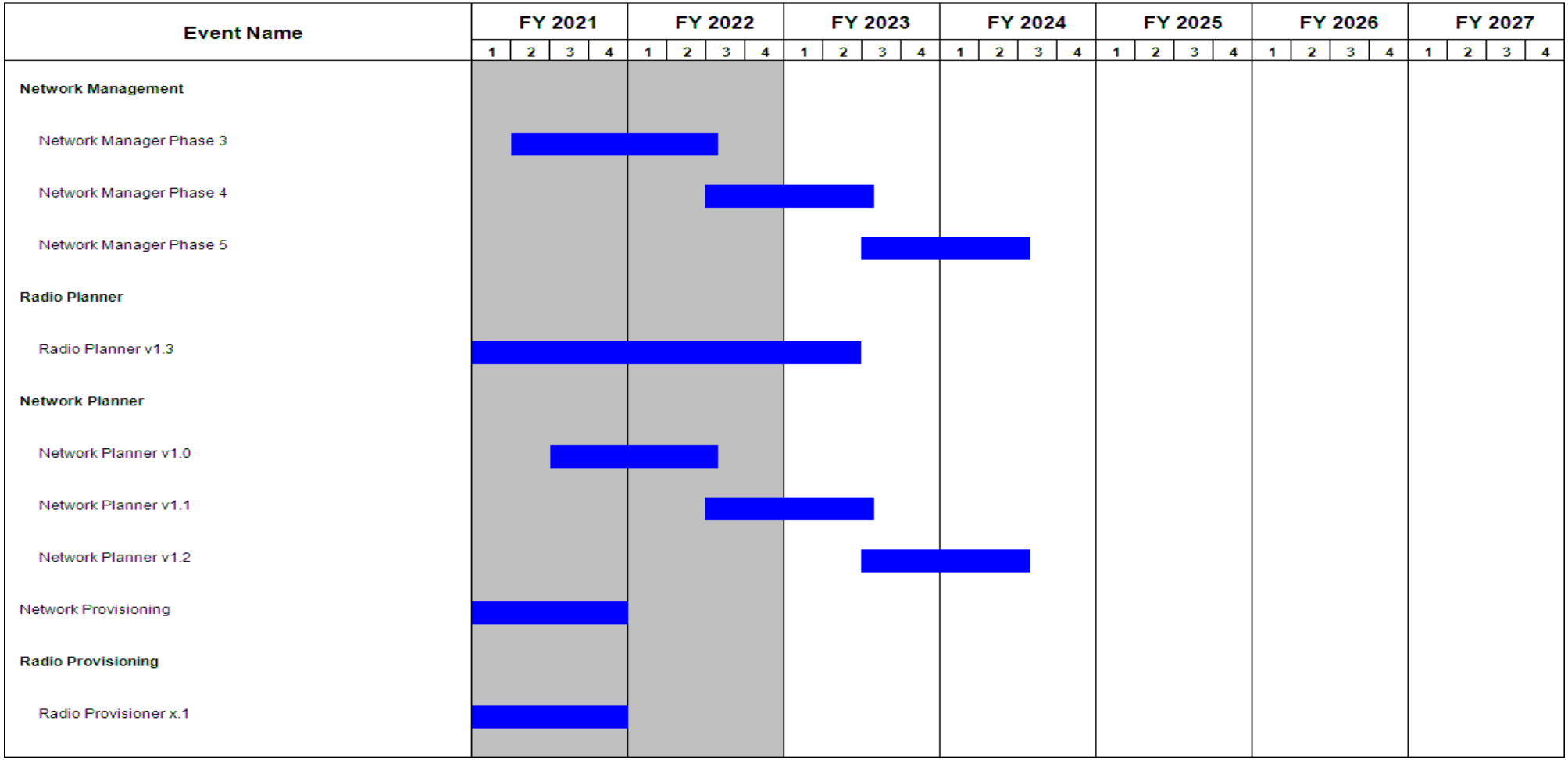
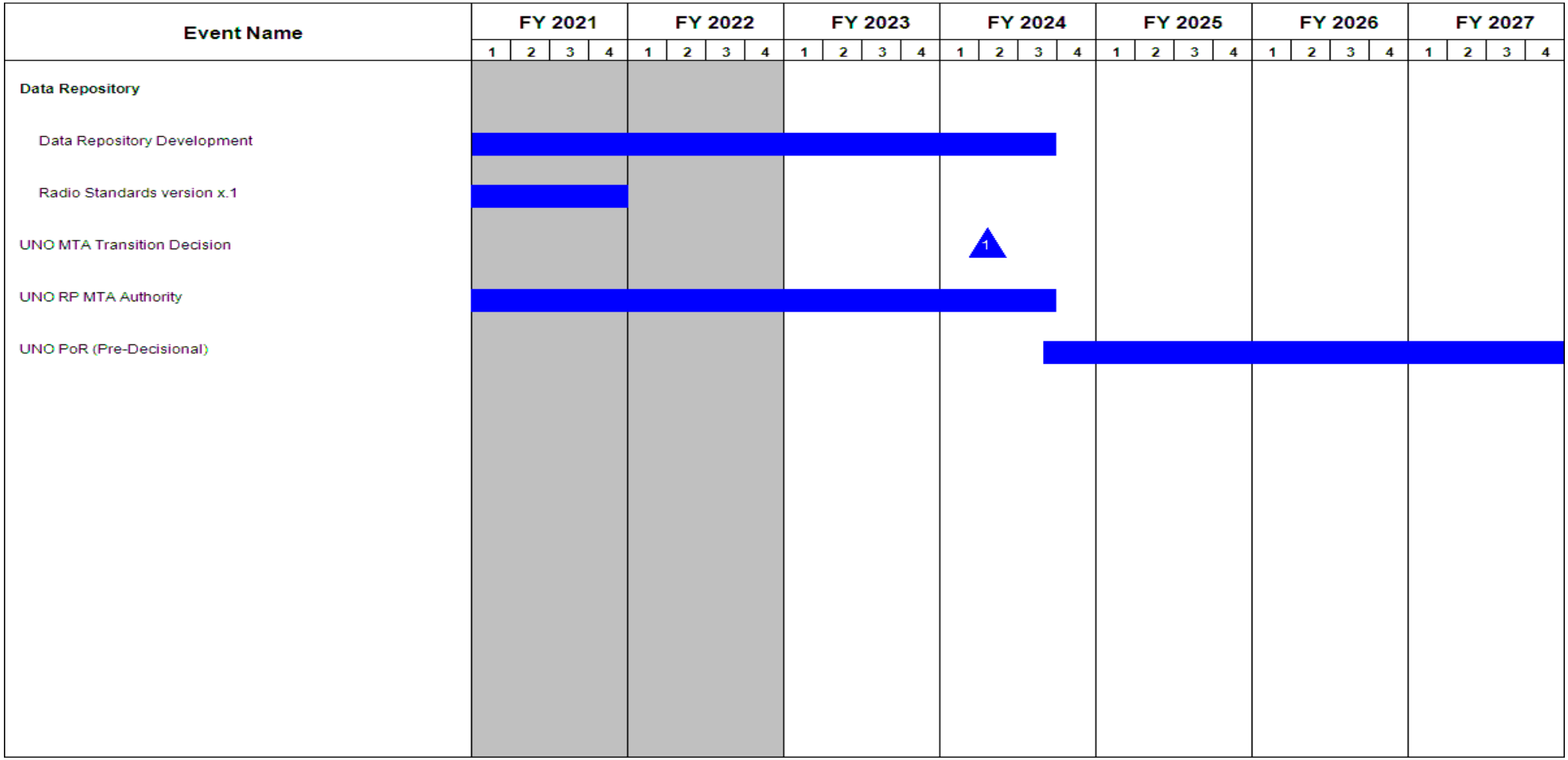


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EW3 / *Unit Task Reorganization (UTR) Development*



Note

UNO MTA leverages funds from Unit Task Reorganization (UTR) 654818/EW3 and Tactical Network Operations Management (TNOM) 654818/EK9.

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604818A / *Army Tactical Command & Control Hardware & Software*	**Project (Number/Name)** EW3 / *Unit Task Reorganization (UTR) Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Network Management	1	2019	3	2024
Network Manager Phase 3	2	2021	3	2022
Network Manager Phase 4	3	2022	3	2023
Network Manager Phase 5	3	2023	3	2024
Radio Planner	1	2019	2	2021
Radio Planner v1.3	1	2021	2	2023
Network Planner	1	2020	3	2024
Network Planner v1.0	3	2021	3	2022
Network Planner v1.1	3	2022	3	2023
Network Planner v1.2	3	2023	3	2024
Network Provisioning	1	2019	4	2021
Radio Provisioning	1	2019	4	2022
Radio Provisioner x.1	1	2021	4	2021
Data Repository	1	2019	3	2024
Data Repository Development	1	2021	3	2024
Radio Standards version x.1	4	2020	4	2021
UNO MTA Transition Decision	2	2024	2	2024
UNO RP MTA Authority	3	2019	3	2024
UNO PoR (Pre-Decisional)	3	2024	4	2027

Note

UNO MTA leverages funds from Unit Task Reorganization (UTR) 654818/EW3 and Tactical Network Operations Management (TNOM) 654818/EK9.