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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>
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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
Total Program Element	-	28.544	18.811	33.029	-	33.029	17.664	10.662	10.698	10.631	0.000	130.039
CY5: <i>CYBER Situational Understanding</i>	-	23.892	18.811	21.125	-	21.125	5.908	0.540	0.431	0.432	0.000	71.139
EV5: <i>Defensive CYBER Operations</i>	-	4.652	-	5.477	-	5.477	5.624	5.754	5.814	5.870	0.000	33.191
XU3: <i>Tactical DCO-I</i>	-	-	-	6.427	-	6.427	6.132	4.368	4.453	4.329	0.000	25.709

**Note**

These funding lines are key enablers of the Army Modernization Priorities in support of efforts aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy. Cyber Situational Understanding (Cyber SU) funding line supports the Army Network Modernization Strategy Line of Effort (LOE), Common Operating Environment (COE). Defensive Cyber Operations (DCO) and Tactical DCO Infrastructure (TDI) funding line supports the Army Network Modernization Strategy LOE, Key Enabler for Unified Network.

TDI is not a new start program. Beginning in FY2023, TDI funding transitioned from 0608041A CD 1 Defensive Cyber- Software Prototype Development (BA-8 Software Pilot Program) to a new project code XU3 (Tactical DCO-I) within PE 0605041A Defensive CYBER Tool Development.

**A. Mission Description and Budget Item Justification**

A portion of this funding line is directly aligned to the Network Army Modernization Priority. FY2023 Defensive Cyber Tool Development budget line provides funding for Program Executive Office Command Control and Communications - Tactical (PEO C3T) Cyber Situational Understanding (Cyber SU) and Tactical DCO Infrastructure (TDI) as well as Program Executive Office Enterprise Information Systems (PEO EIS) DCO Development Environment (formerly Forge).

655041CY5:

- Cyber Situational Understanding (Cyber SU) is a mission command application within the Command Post Computing Environment (CPCE) designed for use by maneuver commanders at the tactical level (Brigade to Army Service Component Command (ASCC)) to enable visualization, understanding and decision making to counter Cyber Electromagnetic Activity (CEMA) threats in multi-domain operations. This funding will be executed by PEO C3T.

655041EV5:

- Defensive Cyber Operations (DCO) consists of platform and software programs which are key elements of the DCO Maneuver Baseline infrastructure, platform, and tools. The employment of defensive capabilities creates specific effects in cyberspace through actions that allow commanders to achieve the following objectives: deter, destroy, and defeat enemy offensive cyberspace operations; gain time; economy of force; control key terrain; protect tasked critical assets and infrastructure; and develop intelligence. DCO supports the Army Cyber Command (ARCYBER), Information Warfare Operations Center (IWOC), (5) Regional Cyber Centers (RCCs), Cyber Warfare Battalion (CWB), Multi-Domain Task Force (MDTF), Cyber Protection Brigade (CPB), and (41) Cyber Protection Teams (CPTs) in COMPO 1/2/3. DCO

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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>
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Development Environment (DCODE) is both physical and/or virtual assets that provide integration and assessment capabilities during the development and integration phases of operations. These assets are centrally managed in order to provide accountability, modernization, standardization, software updating and patching and security posture in order to maintain the Authority to Operate (ATO). This funding will be executed by PEO EIS.

655041XU3:

- TDI is a software only program that pre-configures applications from DCO's Tool Suite to allow local and remote Cyber defenders the ability to conduct cyberspace surveillance and maneuver against an adversary traversing within the tactical network. The TDI capability is hosted on the TSI and will reside within the Command Post at echelon Army Service Component Commands (ASCC) through Brigade. This funding will be executed by PEO C3T.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	28.544	18.892	0.000	-	0.000
Current President's Budget	28.544	18.811	33.029	-	33.029
Total Adjustments	0.000	-0.081	33.029	-	33.029
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	33.029	-	33.029
• FFRDC Transfer	-	-0.081	-	-	-

**Change Summary Explanation**

Fiscal Year 2022 (FY2022) funding decrease reflects FFRDC reduction.

FY2023 funding increase reflects the fact that the FY2022 President's Budget request did not include out-year funding.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>				<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
<i>CY5: CYBER Situational Understanding</i>	-	23.892	18.811	21.125	-	21.125	5.908	0.540	0.431	0.432	0.000	71.139
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This funding line is a key enabler of the Army Modernization Priorities in support of LOE 2, Common Operating Environment (COE). Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy. This funding will be executed by Program Executive Office Command Control and Communications - Tactical (PEO C3T).

**A. Mission Description and Budget Item Justification**

Cyber SU is a software-only, mission command application designed for use by maneuver commanders at the tactical level (Infantry, Armor, Stryker Brigade Combat Teams, Division, Corps, and Army Service Component Commands). Cyber SU is the first application of its kind designed for maneuver commanders focusing on tactical/ expeditionary combat operations to detect and mitigate cyber and electronic warfare threats and assist with decision making during combat operations.

Cyber SU produces a Cyber Electromagnetic Activity (CEMA) overlay on the commander's Common Operational Picture (COP) within the Command Post Computing Environment (CPCE) software, and is integrated on the Tactical Server Infrastructure (TSI) framework. Unlike Enterprise Cyber Mission Force(s) Tools, Cyber SU was designed using the CPCE Software Development Kit (SDK), to operate within the constraints of TSI hardware, a bandwidth constrained tactical environment, and support COE standards on the Army's Command Post. The underlying Cyber SU framework is also being leveraged by the Air Force to ensure alignment with the Army and Air Force Combined Joint All Domain Command and Control (CJADC2). The Army will ensure Cyber SU has an open systems architecture and will continue to explore options to integrate Cyber SU functionality and data ingests between other Services as well as explore insertion of third-party technology within the Cyber SU solution.

Cyber SU provides the maneuver commander the ability to visualize and understand any cyber related impacts/threats to physical (geographical), logical (at a specific network internet protocol), and cyber persona layers (bad actors, from individuals to nation states) of tactical cyberspace data. Supporting CEMA, Cyber SU ingests existing data sources from related programs (e.g, TDI, CPCE, EWPMT, UNO, DCGS-A, DDS), synchronizes and integrates blue (friendly), red (enemy), and grey (commercial/ private sector data), and enables collaboration therein at the tactical edge.

Cyber SU follows a five-year, Information Technology (IT) Box construct to deliver capability over time, based on approved requirements. In the current IT Box (FY2020 - FY2024), Cyber SU is being developed in three capability drops (CDs): See Yourself (Initial Capability), See Your Cyber Battlespace (CD 1), and Understand Your Cyber Battlespace (CD 2). Each capability drop builds upon the previous drop in order to deliver the full capability at the end of the five years. Cyber SU Initial Capability provides the Tactical Maneuver Commander and CEMA work group a user interface within the CPCE COP that shares friendly operations cyberspace activity including network and computer health/status. The CD 1 capability user interface expands to include visualization of enemy CEMA operations. The CD 2 capability incorporates advanced features and analytics to comprehend the meaning of cyber activity and facilitate response actions. This allows for proactive decision making in support multi-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>
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domain operations. Capability will continue to evolve in alignment with warfighter needs with the renewal of the IT Box in FY2024 for the following five year term (FY2025 - FY2029).

Cyber SU FY2023 funding supports the completion of testing and post-test fix/ integration to allow for the delivery of the Cyber SU CD 1 capability planned in 4QFY2023. Funding also supports the development, engineering, training development and program management for Cyber SU CD 2.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2021	FY 2022	FY 2023
<p><b>Title:</b> Development Engineering and Integration</p> <p><b>Description:</b> Leverage industry developed prototype software, as well as ingest and synchronize cyber data from multiple Program of Record (PoRs) to develop and engineer the Cyber SU capability.</p> <p><b>FY 2022 Plans:</b> FY2022 funding supports the completion of post-test fix and integration to allow for the delivery of the Cyber SU Initial capability in support of IOC, planned in 4QFY2022. Cyber SU Initial Capability provides the Tactical Maneuver Commander and CEMA work group a user interface within the CPCE COP that shares friendly operations cyberspace activity, including network and computer health/status. Funding also supports the development of systems engineering/architecture products, middleware and back-end services required to establish the Cyber SU CD 1 capability, in support of CD 1 delivery planned for FY2023. The CD 1 capability user interface expands to include visualization of enemy CEMA operations. In addition, funding supports the initial development planning of CD 2. CD 2 capability incorporates advanced features and analytics to comprehend the meaning of cyber activity and facilitate response actions. This allows for proactive decision making in support multi-domain operations.</p> <p><b>FY 2023 Plans:</b> FY2023 funding supports the completion of CD 1 post- test fix and integration to allow for the delivery of the Cyber SU CD 1 capability planned in FY2023. The CD 1 capability user interface expands to allow the Tactical Maneuver Commander and CEMA work group the ability to visualize enemy CEMA operations. Funding also supports the development of systems engineering/ architecture products, middleware and back-end services required to establish the Cyber SU CD 2 capability. The CD 2 capability incorporates advanced features and analytics to comprehend the meaning of cyber activity and facilitate response actions. This allows for the Tactical Maneuver Commanders and CEMA staff to make proactive decisions in support of multi-domain operations.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Minimal funding adjustment to FY2023</p>	19.581	14.992	15.909
<p><b>Title:</b> Systems Test and Evaluation</p> <p><b>Description:</b> Efforts include the planning and execution of T&amp;E events including Developmental Test, Interoperability Testing, Software Acceptance Testing, Integration Events, Risk Reduction Events, and User Tests/Evaluations.</p> <p><b>FY 2022 Plans:</b></p>	1.731	1.375	2.653

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<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>FY 2022 funding supports the Cyber SU initial capability cybersecurity verification of fixes. Funding also supports the continued Developmental Operations (DevOps), and integration testing required for the Cyber SU CD 1 capability.</p> <p><b>FY 2023 Plans:</b> FY 2023 funding will allow for the continued developmental operations (DevOps), developmental testing (DT), operational assessment (OA), interoperability testing and cybersecurity assessments of the Cyber SU CD 1 capability.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase in FY2023 to support a required operational assessment exclusively for the Cyber SU CD 1 capability.</p>				
<p><b>Title:</b> Training Development</p> <p><b>Description:</b> The development of training support products, including coordination with US Army Training and Doctrine Command (TRADOC) US Army Cyber Command, PORs, and related organizations to develop applicable program of instruction.</p> <p><b>FY 2022 Plans:</b> FY 2022 funding supports the verification/validation of the initial Cyber SU capability. Funding also provides for the development of the New Equipment Training (NET) training support package and software user manuals for Cyber SU CD 1.</p> <p><b>FY 2023 Plans:</b> FY 2023 funding provides for the development of the New Equipment Training (NET) support package, verification/validation, software user manuals/tech manuals and virtual training development for Cyber SU CD 2.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase in FY2023 supports virtual training development.</p>		0.765	0.659	0.776
<p><b>Title:</b> Systems Engineering/Management</p> <p><b>Description:</b> Systems Engineering/Management includes business, technical and logistical staff support and overall management of program execution, major events and reporting.</p> <p><b>FY 2022 Plans:</b> FY 2022 funding provides for program office staff (matrix and contractor) continued program execution support and to perform duties necessary to plan and execute activities and milestone events.</p> <p><b>FY 2023 Plans:</b> FY 2023 funding provides for program office staff (matrix and contractor) continued program execution support and to perform duties necessary to plan and execute activities and milestone events to include the delivery of CD1 in FY2023.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>		1.815	1.785	1.787

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Minimal funding adjustment to FY2023			
<b>Accomplishments/Planned Programs Subtotals</b>	23.892	18.811	21.125

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

N/A

**D. Acquisition Strategy**

The Cyber SU Information System-Initial Capabilities Document was approved on 18 July 2018 by the Joint Requirements Oversight Council. The Requirements Definition Package (RDP) was approved on 19 March 2019 by the Army Requirements Oversight Council Requirements Board. The program is utilizing an evolutionary and tailored acquisition approach under which Cyber SU will develop a series of testable, integrated subsets of capability to meet the overall full functional values of the RDP through the use of Capability Drops (CDs). Subsequent CDs are to be approved by the U.S. Army Cyber Center of Excellence in collaboration with U.S. Army Forces Command. Under this Information Technology (IT) Box requirements construct, the Cyber SU program is currently executing the first five (5) year term FY2020-FY2024 (includes initial capability, CD1 and CD 2). The IT Box will be renewed in 3QFY2024 for the following five year term FY2025-FY2029 (includes CD3-CD7).

The Program Executive Office, Command, Control and Communications-Tactical, Milestone Decision Authority, approved the Materiel Development Decision in 20 June 2018, designating Cyber SU as an Acquisition Category (ACAT) III Automated Information System (AIS) program. Cyber SU entered the Engineering and Manufacturing Development phase of the Acquisition Lifecycle with MDA approval of Milestone B conducted March 2020, and codified in an Acquisition Decision Memorandum 08 April 2020. Full Deployment for IT Box FY2020-FY2024 is achieved with completion of CD2. Cyber SU Full Deployment is defined as when Cyber SU has completed the development and testing of the last capability drop within the IT Box (reaching full functional values of the RDP) and has transferred the capability to the CPCE/TSI program to commence fielding. Execution of the Cyber SU program will be a combination of government entities and commercial vendors.

The program awarded a competitive prototyping/development Other Transaction Authority (OTA) in 3QFY2020 in order to develop the initial Cyber SU capability. An OTA modification was awarded in June 2021, which extended the scope of the OTA to encompass CD1 and CD 2 through Full Deployment FY2024. Cyber SU plans to ingest data from related programs (e.g, TDI, CPCE, EWPM, UNO, DCGS-A, DDS), Coordination and integration with complimentary programs and systems (sources of cyber data feeds) is an integral part of the program to ensure the data is made available to be consumed by the Cyber SU solution.

Cyber SU will be hosted on the Tactical Server Infrastructure (TSI) and will be fielded by the CPCE/TSI program in accordance with their fielding schedule.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering/ Management	Various	CACI; DEVCOM; CECOM : APG, MD	1.067	1.815	Mar 2021	1.785	Mar 2022	1.787	Mar 2023	-		1.787	Continuing	Continuing	-
<b>Subtotal</b>			1.067	1.815		1.785		1.787		-		1.787	Continuing	Continuing	N/A

**Remarks**  
 Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.  
 Systems Engineering/ Management includes Logistics and Program Management Staff and PEO and PM management/programmatic support.  
 Funding remains relatively constant from FY2022 to FY2023

<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cyber SU Software Development/Engineering/ Integration	Various	Research Innovation Inc. (RII); WSEC; Parsons; CACI; MITRE; CCDC : Alexandria, VA; Picatinny, NJ; APG, MD	18.504	19.581	Dec 2020	-		-		-		-	Continuing	Continuing	-
Software Development	C/FFP	Research Innovations Inc (RII) : Alexandria, VA	-	-		7.491	Jan 2022	10.250	Jan 2023	-		10.250	Continuing	Continuing	-
Software Engineering	Various	CACI; DEVCOM DAC : APG, MD; Picatinny, NJ	-	-		2.074	Jan 2022	2.117	Dec 2022	-		2.117	Continuing	Continuing	-
Software Integration	Various	Parsons; Various Matrix Orgs : APG, MD	-	-		2.416	Feb 2022	3.077	Dec 2022	-		3.077	Continuing	Continuing	-
Developmental Hardware and Software	C/Various	CHS; CHES; DITCO : APG, MD; Ft. Belvoir, VA; Scott APB, IL	-	-		3.011	May 2022	0.465	Jan 2023	-		0.465	Continuing	Continuing	-
<b>Subtotal</b>			18.504	19.581		14.992		15.909		-		15.909	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
 Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.  
 Software development increase in FY2023 is required to finalize CD 1 test-fix-test, and also conduct CD 2 development in order to incorporate complex and advanced features/ analytics for proactive decision making during multi-domain operations.  
 Software Integration costs includes CPCE Program of Record (PoR) Integration Engineering and PoR Data Integration.  
 Software Integration cost increase required for data fabric experimentation.  
 Software Engineering costs includes Software Engineering Support and Human factors support.  
 Developmental Hardware(HW) and Software (SW) includes Developmental HW, Developmental SW and Developmental lab equipment.  
 New Developmental HW and associated SW is required every 4-5 years to ensure development on upgraded platforms. In the interim years, only SW renewals and developmental lab equipment will be required.  
 Developmental HW and SW decrease in FY2023 is due to only needing developmental SW renewals for that year instead of a new purchase.

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training Development	Various	DLA; Parsons : Philadelphia, PA; APG, MD	-	0.765	Mar 2021	0.659	Jun 2022	0.776	Jun 2023	-		0.776	Continuing	Continuing	-
<b>Subtotal</b>			-	0.765		0.659		0.776		-		0.776	Continuing	Continuing	N/A

**Remarks**  
 Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.  
 Training Development includes Training Development, Software User Manuals, Training Validation/Verification and Remote training development..  
 Funding increase in FY2023 supports virtual training development.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration/Interoperability/Operational Assessment	Various	Parsons; ATEC; CTSF : APG, MD; Ft. Hood, TX	0.420	0.559	Jan 2021	0.353	Mar 2022	1.527	Dec 2022	-		1.527	Continuing	Continuing	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IA/Test Support	C/FFP	CACI : APG, MD	0.133	0.903	Mar 2021	0.728	Mar 2022	0.823	Dec 2022	-		0.823	Continuing	Continuing	-
Cybersecurity Assessments	Various	DEVCOM DAC; TSMO : APG, MD; Redstone Arsenal, AL	0.059	0.269	Feb 2021	0.294	Feb 2022	0.303	Nov 2022	-		0.303	Continuing	Continuing	-
<b>Subtotal</b>			0.612	1.731		1.375		2.653		-		2.653	Continuing	Continuing	N/A

**Remarks**  
 Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.  
 Integration/Interoperability Test includes Army Evaluation Center (AEC) Support and Program of Record (PoR) Integration Testing.  
 Interoperability Testing and Operational Assessments were not required in FY2022.  
 Operational Assessment in FY2021 was combined with other PoR testing resulting in minimal cost.  
 Funding increase in FY2023 to support a required operational assessment exclusively for the Cyber SU CD 1 capability.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	20.183	23.892	18.811	21.125	-	21.125	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>

Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Development/Integration/Fixes-Initial Capability Drop	[Redacted]				[Redacted]																							
Testing-Initial Capability Drop	[Redacted]				[Redacted]																							
Initial Capability Delivery					1 Initial Capability Delivery																							
Development/Integration/Fixes- Capability Drop 1	[Redacted]				[Redacted]																							
Testing-Capability Drop 1					[Redacted]																							
Delivery of Capability Drop 1									2 Delivery-CD1																			
Development/Integration/Fixes- Capability Drop 2					[Redacted]				[Redacted]																			
Testing-Capability Drop 2													[Redacted]															
Delivery of Capability Drop 2																	4 Delivery-CD2											
Development Contract Award-IT Box- FY25-29																	3 Contract Award											
Development/Integration/Fixes-Capability Drop 3																	[Redacted]											
Testing-Capability Drop 3																	[Redacted]											
Delivery of Capability Drop 3																					5 Delivery-CD3							



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Army		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> CY5 / <i>CYBER Situational Understanding</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RDP Approval	2	2019	2	2019
Milestone B Approval	3	2020	3	2020
Development/Integration/Fixes-Initial Capability Drop	3	2020	2	2022
Testing-Initial Capability Drop	2	2021	2	2022
Initial Capability Delivery	4	2022	4	2022
Development/Integration/Fixes- Capability Drop 1	4	2021	3	2023
Testing-Capability Drop 1	3	2022	3	2023
Delivery of Capability Drop 1	4	2023	4	2023
Development/Integration/Fixes- Capability Drop 2	4	2022	4	2024
Testing-Capability Drop 2	1	2024	4	2024
Delivery of Capability Drop 2	4	2024	4	2024
Development Contract Award-IT Box- FY25-29	4	2024	4	2024
Development/Integration/Fixes-Capability Drop 3	1	2025	2	2026
Testing-Capability Drop 3	3	2025	2	2026
Delivery of Capability Drop 3	3	2026	3	2026
Development/Integration/Fixes-Capability Drop 4	1	2026	2	2027
Testing-Capability Drop 4	3	2026	2	2027
Delivery of Capability Drop 4	3	2027	3	2027
Development/Integration/Fixes-Capability Drop 5	1	2027	2	2028
Testing-Capability Drop 5	3	2027	2	2028

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>				<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
<i>EV5: Defensive CYBER Operations</i>	-	4.652	-	5.477	-	5.477	5.624	5.754	5.814	5.870	0.000	33.191
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Defensive Cyber Operations (DCO) supports the Army Network Modernization Strategy Line of Effort (LOE) Key Enabler for the Unified Network. These efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

Platforms/Levels:

- \* DCO - Tactical DCO Infrastructure (TDI) // (FY2021-2022 funds captured in the Pilot program 0608041A CD1 and FY2023 funds captured in 0605041A XU3) // (PEO C3T)
- \* DCO - Cyberspace Analytics // (FY2023 funds captured in the Pilot program) // (PEO EIS)

Defensive Cyber Tools and Analytics:

- \* DCO - Mission Planning // (FY2023 funds captured in the Pilot program) // (PEO EIS)
- \* DCO - User Activity Monitoring // (FY2023 funds captured in the Pilot program) // (PEO EIS)
- \* DCO - DCO Development Environment (DCODE Forge) // (PEO EIS)
- \* DCO - Army Cyber Command (ARCYBER) Rapid Cyber Prototyping // (ARCYBER)

655041EV5:

- Defensive Cyber Operations (DCO) consists of platform and software programs which are key elements of the DCO Maneuver Baseline infrastructure, platform, and tools. The employment of defensive capabilities creates specific effects in cyberspace through actions that allow commanders to achieve the following objectives: deter, destroy, and defeat enemy offensive cyberspace operations; gain time; economy of force; control key terrain; protect tasked critical assets and infrastructure; and develop intelligence. DCO supports the Army Cyber Command (ARCYBER), Information Warfare Operations Center (IWOC), (5) Regional Cyber Centers (RCCs), Cyber Warfare Battalion (CWB), Multi-Domain Task Force (MDTF), Cyber Protection Brigade (CPB), and (41) Cyber Protection Teams (CPTs) in COMPO 1/2/3.

- (Legacy) ARCYBER Rapid Cyber Prototyping provides software based capabilities that can quickly respond to emerging cyber threats and keep up with threat technology; while supporting Multi-Domain operations. ARCYBER identifies potential development and prototyping efforts via Cyber Needs Forms (CNFs) based on operational feedback, changes in the operational information environment and/or trends of adversarial activity; which drive CONOP and Tactics Techniques and Procedures (TTP) modifications. These are separate and distinct from DCO programmed efforts already funded or budgeted for by PM DCO and are used to rapidly address a network threat/vulnerability.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Title:</b> DCO - Development Environment (formerly Forge) (PEO EIS)</p> <p><b>Description:</b> DCO Development Environment (DCODE) (formerly Forge) is both physical and virtual assets that provides continual integration, upgrade, assessment, optimization in support of the warfighter's operational environment. Its purpose is to provide centralized lifecycle management and consist of the following capabilities: (1) Forge - physical and/or virtual assets that provide integration and assessment capabilities during the development and integration phases of operations. These assets are centrally managed in order to provide accountability, modernization, standardization, software updating and patching and security posture in order to maintain the Authority to Operate (ATO); (2) Development Network - provides the capability for Cyber Protection Teams (CPTs) to remotely access multiple networks, simultaneously, thru a safe and secure infrastructure framework.</p> <p><b>FY 2023 Plans:</b> FY2023 funding continues to provide physical and/or virtual assets that provide integration and assessment capabilities during the development and integration phases of operations. These assets are centrally managed in order to provide accountability, modernization, standardization, software updating and patching, and security posture in order to maintain the Authority to Operate (ATO)</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY2023 will continue to provide additional engineering support to perform innovative assessments, solves complex technical issues, provides product solutions, and delivers various DCO capabilities to fulfill Cyber Defender's missions.</p>	3.653	-	5.477
<p><b>Title:</b> DCO - Rapid Cyber Prototyping (ARCYBER)</p> <p><b>Description:</b> ARCYBER Rapid Cyber Prototyping provides software based capabilities that can quickly respond to emerging cyber threats and keep up with threat technology; while supporting Multi-Domain operations. ARCYBER identifies potential development and prototyping efforts via Cyber Needs Forms (CNFs) based on operational feedback, changes in the operational information environment and/or trends of adversarial activity; which drive CONOP and Tactics Techniques and Procedures (TTP) modifications. These are separate and distinct from DCO programmed efforts already funded or budgeted for by PM DCO and are used to rapidly address a network threat/vulnerability.</p>	0.999	-	-
<b>Accomplishments/Planned Programs Subtotals</b>			
	4.652	-	5.477

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• B63103: <i>Advanced Cyber Tool Development</i>	41.153	27.389	0.000	-	0.000	-	-	-	-	-	Continuing Continuing

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• B66350: <i>ARCYBER DEFENSIVE CYBER OPERATIONS</i>	-	-	18.239	-	18.239	-	-	-	-	0.000	18.239
• B89001: <i>Insider Threat Program - Unit Activity Monitoring</i>	1.760	-	1.796	-	1.796	1.647	1.787	1.792	1.792	0.000	10.574
• 0608041A: <i>Defensive CYBER - Software Prototype Development</i>	56.706	108.841	94.888	-	94.888	11.809	6.921	3.949	4.682	0.000	287.796

**Remarks**

OPA PE B63103 - DCO hardware procurement, fielding, and new equipment training for Garrison DCO Platform (GDP), Deployable Defensive Systems (DDS), and DCODE Armory.  
 OPA PE B66350 (New OPA line starting in FY2023) - DCO hardware procurement, fielding, and new equipment training for GDP, DDS, and DCODE Armory.  
 OPA PE B89001 - DCO Insider Threat Program - Unit Activity Monitoring for UAM operations conducted in support of the Army's insider threat program.  
 RDTE PE 0608041A - DCO Software Pilot Program starting in FY2021.

**D. Acquisition Strategy**

The DCO Information System Initial Capabilities Document was approved on 19 December 2017 by the Army Requirements Oversight Council (AROC). DCO programs are under an IT Box construct with five year term (FY2018-FY2022) which aligns with current Requirements Definition Packages (RDPs). IT Box establishes funding thresholds, by appropriation, for a program over a capability's projected lifecycle of five (5) years. Current IT Box will expire in 4QFY2022 and planned to be renewed in 3QFY2022.

The ARB approved Cyber Analytics RDP on 18 May 2018; DCO Mission Planning on 8 November 2018; and User Activity Monitoring on 18 March 2019. The MDA designated these as ACAT IV programs. Under subsequent reviews, the MDA approved agile acquisition approach to develop and deliver preconfigured software in a series of releases and capability drops in order to deliver full functional values of the RDP that align with DCO priorities. DCO programs utilize standard and FY2018 National Defense Authorization Act (NDAA) 874 agile pilot evolutionary acquisition processes (30-90 rapid acquisition approach). DCO continually delivers new technologies and capabilities as a prototype and fields updated capabilities. DCO contract strategy utilizes multiple existing contracts vehicles to include Other Transactional Authority (OTA), Federal Acquisition Regulation (FAR)-based, Blanket Purchase Agreement (BPA), and Basic Ordering Agreement (BOA).

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(Legacy) DCO - Tactical DCO Infrastructure (TDI) (PEO C3T)	C/FFP	CACI : Aberdeen Proving Ground (APG), MD	8.746	-		-		-		-		-	0.000	8.746	-
DCO - Cyberspace Analytics (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.552	-		-		-		-		-	0.000	0.552	-
DCO - Tools Suite (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.189	-		-		-		-		-	0.000	0.189	-
DCO - Garrison Defensive Platform (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.913	-		-		-		-		-	0.000	0.913	-
DCO - Mission Planning (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.542	-		-		-		-		-	0.000	0.542	-
DCO - Deployable DCO System (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.189	-		-		-		-		-	0.000	0.189	-
DCO - Management Services (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	3.947	-		-		-		-		-	0.000	3.947	-
<b>Subtotal</b>			15.078	-		-		-		-		-	0.000	15.078	N/A

<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(Legacy)DCO - TDI (PEO C3T)	C/CPFF	Parsons and CACI : Aberdeen Proving Ground (APG), MD	14.953	-		-		-		-		-	0.000	14.953	-
DCO - Cyberspace Analytics (PEO EIS)	C/FFP	ACC-RI : IL	50.424	-		-		-		-		-	0.000	50.424	-
DCO - Garrison Defensive Platform (PEO EIS)	C/FFP	ACC-RI : IL	2.060	-		-		-		-		-	0.000	2.060	-
DCO- Garrison Defensive Platforms (PEO EIS)	C/Various	ACC-PI : NJ	9.690	-		-		-		-		-	0.000	9.690	-
DCO - Mission Planning (PEO EIS)	C/CPFF	ACC-RI : IL	10.317	-		-		-		-		-	0.000	10.317	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCO - User Activity Monitoring (PEO EIS)	C/T&M	ACC-RI : IL	1.588	-		-		-		-		-	0.000	1.588	-
DCO- Threat Emulation (PEO EIS)	C/FFP	ACC-RI : IL	0.761	-		-		-		-		-	0.000	0.761	-
DCO - Rapid Cyber Prototyping (ARCYBER)	C/TBD	ACC-RI : IL	1.000	0.999	Jun 2021	-		-		-		-	0.000	1.999	-
DCO- Mission Planning (PEO EIS)	MIPR	USAF, AFMC AIR FORCE RESEARCH LAB : NY	14.520	-		-		-		-		-	0.000	14.520	-
<b>Subtotal</b>			105.313	0.999		-		-		-		-	0.000	106.312	N/A

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(Legacy)DCO - TDI (PEO C3T)	MIPR	DLA : Philadelphia, PA	0.330	-		-		-		-		-	0.000	0.330	-
<b>Subtotal</b>			0.330	-		-		-		-		-	0.000	0.330	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(Legacy)DCO - TDI (PEO C3T)	MIPR	ATEC : Aberdeen Proving Ground (APG), MD	2.450	-		-		-		-		-	0.000	2.450	-
DCO - Cyberspace Analytics (PEO EIS)	IA	ATEC & SEC : MD	4.923	-		-		-		-		-	0.000	4.923	-
DCO - Tools Suite (PEO EIS)	IA	ATEC & SEC : MD	0.500	-		-		-		-		-	0.000	0.500	-
DCO - Garrison Defensive Platform (PEO EIS)	IA	ATEC & SEC : MD	0.500	-		-		-		-		-	0.000	0.500	-



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date: April 2022</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>

Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DCO - Development Environment (formerly Forge)	[Redacted]																											
DCO - ARCYBER Rapid Cyber Prototyping (DRUID)	[Redacted]																											
DCO - ARCYBER Rapid Cyber Prototyping (Inception)	[Redacted]																											
DCO - ARCYBER Rapid Cyber Prototyping (Rapid Proto/Capability Assessment)	[Redacted]																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Army		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DCO - Tactical DCO-Infrastructure (TDI) - RDP Approval	3	2018	3	2018
DCO - TDI Development/Integration/Testing-Initial	1	2019	4	2019
DCO - TDI- Initial Capability Delivery	1	2020	1	2020
DCO - TDI Development/Integration/Testing-CD 1	4	2019	4	2020
DCO- Cyberspace Analytics RDP Approval	3	2018	3	2018
DCO - Cyberspace Analytics POR Award	1	2019	1	2019
DCO - Cyberspace Analytics POR Contract	2	2019	4	2020
DCO - Cyberspace Analytics Capability Drop #1	1	2019	1	2019
DCO - Cyberspace Analytics Capability Drop #2	2	2019	2	2019
DCO - Cyberspace Analytics Capability Drop #3	3	2019	3	2019
DCO - Mission Planning RDP Approved	3	2018	3	2018
DCO - Mission Planning POR Award	1	2019	1	2019
DCO - Mission Planning POR Contract	2	2019	4	2020
DCO - Mission Planning Capability Drop #1	4	2019	4	2019
DCO - Mission Planning Capability Drop #2	1	2020	1	2020
DCO - Mission Planning Capability Drop #3	2	2020	2	2020
DCO - User Activity Monitoring Prototype Award	1	2019	4	2019
DCO - User Activity Monitoring RDP Approval	1	2019	1	2019
DCO - User Activity Monitoring POR Award	1	2020	1	2020
DCO - User Activity Monitoring POR Contract	1	2020	4	2020
DCO - User Activity Monitoring Employ on CASE Network	1	2020	2	2020
DCO - User Activity Monitoring Integrate with BDP	2	2020	3	2020

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

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> EV5 / <i>Defensive CYBER Operations</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
DCO - User Activity Monitoring Behavioral Analytics	3	2020	4	2020
DCO - Threat Emulation RDP Approval	1	2020	1	2020
DCO - Threat Emulation Program of Record	1	2020	4	2020
DCO - Development Environment (formerly Forge)	1	2019	4	2027
DCO - Management Services	1	2019	4	2020
DCO - ARCYBER Rapid Cyber Prototyping (DRUID)	3	2020	2	2021
DCO - ARCYBER Rapid Cyber Prototyping (Inception)	4	2020	4	2021
DCO - ARCYBER Rapid Cyber Prototyping (Rapid Proto/Capability Assessments)	3	2021	3	2022

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>
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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
XU3: <i>Tactical DCO-I</i>	-	-	-	6.427	-	6.427	6.132	4.368	4.453	4.329	0.000	25.709
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This funding line is a key enabler of the Army Modernization Priorities in support Line of Effort (LOE) 1, Key Enabler for Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

TDI is not a new start program. Beginning in FY2023, TDI funding transitioned from 0608041A CD 1 Defensive Cyber- Software Prototype Development (BA-8 Software Pilot Program) to a new project code XU3 (Tactical DCO-I) within PE 0605041A Defensive CYBER Tool Development. TDI is solely funded with RDT&E for development, engineering, testing, training development, and program management. TDI, an RDT&E only program, did not provide an opportunity for the BA-8 Software Pilot Program to assess the alignment of multiple appropriations into a single appropriation.

TDI FY2021-2022 funding is within PE 0608041A, Project code CD1 (BA8 Software Pilot)  
TDI FY2023 and beyond funding is within PE 0605041, Project code XU3 (Tactical DCO-I)

**A. Mission Description and Budget Item Justification**

FY2023 Tactical DCO- I budget line provides funding for Program Executive Office Command Control and Communications - Tactical (PEO C3T) Tactical Defensive Cyber Operations (DCO) Infrastructure (TDI)

TDI is a software only program that pre-configures applications from DCO's Tool Suite to allow local and remote Cyber defenders the ability to conduct cyberspace surveillance and maneuver against an adversary traversing within the tactical network. The TDI capability is hosted on the Tactical Server Infrastructure (TSI) and will reside within the Command Post at echelon Army Service Component Commands (ASCC) through Brigade.

The TDI capability includes: 1) Mission Protection: Ability to automate deployment of DCO tools to protect the virtual server environment of the Command Post Computing Environment (CPCE). 2) Discovery/Counter- Infiltration: Ability to auto detect multiple virtual cyber threats and facilitate the mitigation/denial of adversarial actions. 3) Cyberspace Support/Readiness: Allow global and regional cyberspace defenders to assist units with countering advanced persistent threats.

TDI follows a five-year, Information Technology (IT) Box construct to deliver capability over time, based on approved requirements. In IT Box (FY2023-2027), TDI is being developed in four capability drops (CDs). CD 4 will integrate Security Orchestration, Automation, and Response (SOAR) and Big Data Platform (BDP) Lower Echelon Analytics Platform (LEAP) - tactical (LTAC) to synchronize with PM DCO's portfolio. CD5 will execute distributed queries from various data sources and facilitate remote operations defensive maneuvers to the tactical enclaves. CD 6 will support and incorporate emerging Security Orchestration, Automation, and Response (SOAR) and LTAC capabilities and applications. CD7 will support capabilities and technologies to address emerging cyber threat and techniques, tactics, and procedures (TTPs).

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>	
TDI FY2023 funding supports the development, engineering, testing, training development and program management required to establish the first capability (Capability Drop (CD) 4) of the follow on IT Box FY2023-2027 in support of CD 4 delivery, planned for FY2024. CD 4 will integrate Security Orchestration, Automation, and Response (SOAR) and Big Data Platform (BDP) Lower Echelon Analytics Platform (LEAP) - tactical (LTAC) to synchronize with PM DCO's portfolio.			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> Development Engineering		-	-
<b>Description:</b> Efforts include development engineering and integration required for DCO tools to be utilized on the Tactical Network.			4.575
<b>FY 2023 Plans:</b> FY2023 funding supports the development engineering and integration of Capability Drop 4 (CD 4) in support of FY2024 delivery. CD 4 will integrate Security Orchestration, Automation, and Response (SOAR) and Big Data Platform (BDP) Lower Echelon Analytics Platform (LEAP) - tactical (LTAC) to synchronize with PM DCO's portfolio. Funding will also support the initial development engineering of CD 5. CD5 will execute distributed queries from various data sources and facilitate remote operations defensive maneuvers to the tactical enclaves.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> These efforts are a continuation of and transfer from RDTE PE 0608041 CD1. Funding increase in Development Engineering from FY2022 (\$4.176M, 0608041CD1) to FY2023 (\$4.575M, 0605041XU3) due to an increase in engineering support needed for the new IT Box (FY2023-FY2027).			
<b>Title:</b> Systems Test and Evaluation		-	-
<b>Description:</b> Efforts include the planning and execution of T&E events including Developmental Test, Interoperability Testing, Software Acceptance Testing, Integration Events, Risk Reduction Events, Operational Assessments, Information Assurance and User Tests/Evaluations.			1.013
<b>FY 2023 Plans:</b> FY 2023 funding will allow for the user testing of the TDI CD 3 capability. Funding will also support developmental testing and interoperability testing of the TDI CD 4 capability, in order to gain data and feedback to inform development (test fix test) and support the delivery of CD 4 in FY2024.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> These efforts are a continuation of and transfer from RDTE PE 0608041 CD1. Funding increase in Test and Evaluation from FY2022 (\$0.574M, 0608041CD1) to FY2023 (\$1.013M, 0605041XU3) due to additional ATEC testing and support required for the updated set of IT Box requirements (FY2023-FY2027). In addition, Army Interoperability Certification testing is needed in FY2023.			
<b>Title:</b> Training Development		-	-
			0.240

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> The development of training support products, including coordination with US Army Training and Doctrine Command (TRADOC) US Army Cyber Command, PORs, and related organizations to develop applicable program of instruction.</p> <p><b>FY 2023 Plans:</b> FY 2023 funding provides for the development of the New Equipment Training (NET) support package to include verification/validation, software user manuals/technical manuals and virtual training in support of TDI CD 4 delivery in FY2024.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> These efforts are a continuation of and transfer from RDTE PE 0608041 CD1. Funding increase in Training Development from FY2022 (\$0.213M, 0608041CD1) to FY2023 (\$0.240M, 0605041XU3) due to additional cost required for virtual training development.</p>				
<p><b>Title:</b> Systems Engineering/Management</p> <p><b>Description:</b> Systems Engineering/Management includes business, technical and logistical staff support and overall management of program execution, major events and reporting.</p> <p><b>FY 2023 Plans:</b> FY 2023 funding provides for program office staff (matrix and contractor) continued program execution support and to perform duties necessary to plan and execute activities and milestone events associated with completion of the current TDI IT Box FY2018- FY2022.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> These efforts are a continuation of and transfer from RDTE PE 0608041 CD1. Funding remains relatively constant in Systems Engineering/Management from FY2022 (\$0.582M, 0608041CD1) to FY2023 (\$0.599M, 0605041XU3).</p>		-	-	0.599
<b>Accomplishments/Planned Programs Subtotals</b>		-	-	6.427
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
The Milestone Decision Authority (MDA), approved the Materiel Development Decision (MDD) on 13 April 2018, designating Tactical DCO Infrastructure (TDI) as an ACAT III program. The MDA approved a tailored defense unique software intensive acquisition approach for TDI. Under further consideration, the MDA assessed the TDI program and determined that TDI meets the criteria for an ACAT IV program and MDA delegation. The program is considered low risk due to program maturity				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Army **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>
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and continued use of Commercial Off the Shelf (COTS) tools within the TDI baseline. On 23 November 2021, the MDA approved delegation of the TDI program to the Program Manager (PM) and re-designation of the program to ACAT IV.

The TDI program is under an Information Technology (IT) Box construct with a five (5) year term (FY2018-FY2022) which aligns with the current requirements (includes initial capability drop through CD 3). The TDI Initial Capability drop integrated the initial DCO tool suite on the TSI hardware platform and enabled remote connection. CD 1 will integrate the enhanced DCO tool suite that will expand the sensor architecture to more command post applications. CD 2 will integrate the enhanced DCO tool suite that will leverage machine learning and expand the data collection beyond the command post to the extended tactical network. This will finalize integration of current DCO remote operations capability to facilitate timely escalation of remote incident response. CD 3 will integrate the enhanced DCO tool suite that will enable broader data collection and data aggregation (including existing logs from other Programs of Record (PoR), and the ability for WiFi and 4G connection.

The TDI program achieved initial capability delivery 1QFY2020. Full Deployment for the current IT Box (FY2018-FY2022) is planned for 3QFY2023 with the completion of CD3. TDI Full Deployment is defined as when TDI has completed the development and testing of the last capability drop within the IT Box (reaching full functional values of the RDP) and has transferred the capability to the CPCE/TSI program to commence fielding.

The TDI IT Box will be renewed in FY2022 for the following five (5) year term (FY2023-FY2027), which includes CD 4 through CD 7. CD 4 will integrate Security Orchestration, Automation, and Response (SOAR) and Big Data Platform (BDP) Lower Echelon Analytics Platform (LEAP) - tactical (LTAC) to synchronize with PM DCO's portfolio. CD5 will execute distributed queries from various data sources and facilitate remote operations defensive maneuvers to the tactical enclaves. CD 6 will support and incorporate emerging Security Orchestration, Automation, and Response (SOAR) and LTAC capabilities and applications. CD7 will support capabilities and technologies to address emerging cyber threat and techniques, tactics, and procedures (TTPs).

Execution of the TDI program will be a combination of government entities and commercial vendors.

TDI will be hosted on the Tactical Server Infrastructure (TSI) and will be fielded by the CPCE/TSI program in accordance with their fielding schedule.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering/Management	Various	CACI; CECOM : APG, MD	-	-		-		0.599	Dec 2022	-		0.599	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		0.599		-		0.599	Continuing	Continuing	N/A

**Remarks**  
Funding remains relatively constant in Systems Engineering/Management from FY22 (\$0.582M, 0608041CD1) to FY23 (\$0.599M, 0605041XU3)  
Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.

<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	C/TBD	TBD- Contract will be re-competed : TBD	-	-		-		2.748	Dec 2022	-		2.748	Continuing	Continuing	-
Software Engineering	Various	CECOM; CACI; PEO C3T : APG, MD	-	-		-		1.472	Nov 2022	-		1.472	Continuing	Continuing	-
Developmental Hardware/Software	Various	CHS;CHESS : Ft. Belvoir, VA	-	-		-		0.355	Jan 2023	-		0.355	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		4.575		-		4.575	Continuing	Continuing	N/A

**Remarks**  
Funding increase in Product Development from FY2022 (\$4.176M, 0608041CD1) to FY2023 (\$4.575M, 0605041XU3) due to an increase in engineering support needed for the new IT Box (FY2023-FY2027).  
Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training Development	TBD	TBD : TBD	-	-		-		0.240	Jun 2023	-		0.240	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		0.240		-		0.240	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>
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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
Funding increase in Training Development from FY22 (\$0.213M, 0608041CD1) to FY23 (\$0.240M, 0605041XU3) due to additional cost required for virtual training development. Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Test and Evaluation	Various	CACI; ATEC; CTSF : APG, MD; Ft. Hood TX	-	-		-		1.013	Dec 2022	-		1.013	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		1.013		-		1.013	Continuing	Continuing	N/A

**Remarks**  
Funding increase in Test and Evaluation from FY2022 (\$0.574M, 0608041CD1) to FY2023 (\$1.013M, 0605041XU3) due to additional ATEC testing and support required for the updated set of IT Box requirements (FY2023-FY2027). In addition, Army Interoperability Certification testing is needed in FY2023. Contract award date reflects when the first incremental funding is expected to be obligated in the Fiscal Year.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	-	-	6.427	-	6.427	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date: April 2022</b>
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>

Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Testing- CD 3									[Bar]																			
													Testing - CD 3															
Delivery of CD 3													▲ 1															
													Delivery-CD3															
Development/Integration/Fixes- CD 4													[Bar]															
													Dev/Int./Fix- CD4															
Testing - CD 4													[Bar]															
													Testing - CD 4															
Delivery of CD 4																	▲ 2											
																	Delivery-CD4											
Development/Integration/Fixes- CD 5																	[Bar]											
																	Dev/Int./Fix- CD5											
Testing - CD 5																	[Bar]											
																	Testing - CD 5											
Delivery of CD 5																					▲ 3							
																					Delivery-CD 5							
Development/Integration/Fixes- CD 6																					[Bar]							
																					Dev/Int./Fix- CD 6							
Testing - CD 6																					[Bar]							
																					Testing - CD 6							
Delivery of CD 6																									▲ 4			
																									Delivery-CD 6			
Development/Integration/Fixes- CD 7																									[Bar]			
																									Dev/Int./Fix CD 7			
Testing - CD 7																									[Bar]			
																									Testing - CD 7			

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

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>
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Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Delivery of CD 7																									5 Deliv			

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Army</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605041A / <i>Defensive CYBER Tool Development</i>	<b>Project (Number/Name)</b> XU3 / <i>Tactical DCO-I</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Testing- CD 3	1	2023	2	2023
Delivery of CD 3	3	2023	3	2023
Development/Integration/Fixes- CD 4	2	2023	2	2024
Testing - CD 4	3	2023	2	2024
Delivery of CD 4	3	2024	3	2024
Development/Integration/Fixes- CD 5	3	2024	2	2025
Testing - CD 5	4	2024	2	2025
Delivery of CD 5	3	2025	3	2025
Development/Integration/Fixes- CD 6	4	2025	4	2026
Testing - CD 6	1	2026	4	2026
Delivery of CD 6	4	2026	4	2026
Development/Integration/Fixes- CD 7	1	2027	4	2027
Testing - CD 7	2	2027	4	2027
Delivery of CD 7	4	2027	4	2027

**Note**

TDI is not a new start program. Beginning in FY2023, TDI funding transitioned from 0608041A CD 1 Defensive Cyber- Software Prototype Development (BA-8 Software Pilot Program) to a new project code XU3 (Tactical DCO-I) within PE 0605041A Defensive CYBER Tool Development. TDI is solely funded with RDT&E for development, engineering, testing, training development, and program management. TDI, an RDT&E only program, did not provide an opportunity for the BA-8 Software Pilot Program to assess the alignment of multiple appropriations into a single appropriation.

TDI delivery is defined as when TDI provides the capability to CPCE/TSI to begin fielding.