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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</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	-	50.525	55.895	55.677	-	55.677	0.000	0.000	0.000	0.000	0.000	162.097
DD3: <i>Joint Cyber Warfighting Architecture Cyber Train</i>	-	-	-	55.677	-	55.677	-	-	-	-	0.000	55.677
FA8: <i>Cyberspace Operations Forces and Force Support</i>	-	50.525	55.895	-	-	-	-	-	-	-	0.000	106.420

A. Mission Description and Budget Item Justification

Persistent Cyber Training Environment (PCTE) supports the United States Cyber Command (USCC) by enabling the critical need for the DoD Cyber Mission Force (CMF) to train at the individual, team, and force level. PCTE provides the DoD CMF with a standardized training capability that maximizes shared content across the Services to include emulated network environments and has the ability to connect to other range environments and cyber training assets. The PCTE platform is aligned to the outputs of the Office of the Under Secretary of Defense for Acquisition & Sustainment OUSD (A&S) and Chairman of the Joint Chiefs of Staff (CJCS) J6 led, "Cyber Range Evaluation of Alternatives (EOA) Findings and Issue Paper Deliberations," dated 17 November 2015. The Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) was designated as the DoD Acquisition Lead for the PCTE and the program is directed by the 2016 National Defense Authorization Act, Section 1645. With the Joint Requirements Oversight Council (JROC) validation of the Information System - Capability Development Document (IS-CDD) on 4 November 2019, the PCTE program quickly achieved Milestone B on 6 December 2019. Through ongoing rapid prototyping efforts, the PCTE platform has fulfilled the critical need for a CMF standardized training capability upon release of PCTE Version 2 in Fourth Quarter Fiscal Year 2020, and continues to do so with ongoing version releases.

FY 2023 PCTE funding will focus on United States Cyber Command (USCC) priorities within platform releases to include enhancing current capability fidelity while introducing additional features. Areas of planned feature updates and enhancements include CMF learning management system, assessment and readiness capabilities, cloud based cyber terrain replication, distributed platform consolidation, cloud migration, and infrastructure consumption model implementation. The PCTE platform will continue collaboration with all stakeholders within the Joint Cyber Warfighting Architecture (JCWA), and continue initial integration efforts across the JCWA portfolio as prioritized through USCC. The PCTE platform will maintain accreditations at all required classification levels to serve DoD CMF user training at the Unclassified, Secret, and Top Secret data classification levels. Platform infrastructure and licensing will be maintained to support the full DoD CMF user base.

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B. Program Change Summary (\$ in Millions)	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>
Previous President's Budget	50.525	52.988	0.000	-	0.000
Current President's Budget	50.525	55.895	55.677	-	55.677
Total Adjustments	0.000	2.907	55.677	-	55.677
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	4.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	55.677	-	55.677
• FFRDC Transfer	-	-0.093	-	-	-

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: FA8: *Cyberspace Operations Forces and Force Support*

Congressional Add: *Program increase - Army Cyber Institute*

	<u>FY 2021</u>	<u>FY 2022</u>
	-	4.000
Congressional Add Subtotals for Project: FA8	-	4.000
Congressional Add Totals for all Projects	-	4.000

Change Summary Explanation

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

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Army										Date: April 2022		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>					Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>		
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
DD3: <i>Joint Cyber Warfighting Architecture Cyber Train</i>	-	-	-	55.677	-	55.677	-	-	-	-	0.000	55.677
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Under PE 0305251A / *Cyberspace Operations Forces and Force Support* Project FA8 / *Cyberspace Operations Forces and Force Support* moves to Project DD3 in FY 2023.

A. Mission Description and Budget Item Justification

Persistent Cyber Training Environment (PCTE) supports the United States Cyber Command (USCC) by enabling the critical need for the DoD Cyber Mission Force (CMF) to train at the individual, team, and force level. PCTE provides the DoD CMF with a standardized training capability that maximizes shared content across the Services to include emulated network environments and has the ability to connect to other range environments and cyber training assets. The PCTE platform is aligned to the outputs of the Office of the Under Secretary of Defense for Acquisition & Sustainment OUSD (A&S) and Chairman of the Joint Chiefs of Staff (CJCS) J6 led, "Cyber Range Evaluation of Alternatives (EOA) Findings and Issue Paper Deliberations," dated 17 November 2015. The Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) was designated as the DoD Acquisition Lead for the PCTE and the program is directed by the 2016 National Defense Authorization Act, Section 1645. With the Joint Requirements Oversight Council (JROC) validation of the Information System - Capability Development Document (ISCDD)

on 4 November 2019, the PCTE program quickly achieved Milestone B on 6 December 2019. Through ongoing rapid prototyping efforts, the PCTE platform has fulfilled the critical need for a CMF standardized training capability upon release of PCTE Version 2 in Fourth Quarter Fiscal Year 2020, and continues to do so with ongoing version releases.

FY 2023 PCTE funding will focus on United States Cyber Command (USCC) priorities within platform releases to include enhancing current capability fidelity while introducing additional features. Areas of planned feature updates and enhancements include CMF learning management system, assessment and readiness capabilities, cloud based cyber terrain replication, distributed platform consolidation, cloud migration, and infrastructure consumption model implementation. The PCTE platform will continue collaboration with all stakeholders within the Joint Cyber Warfighting Architecture (JCWA), and continue initial integration efforts across the JCWA portfolio as prioritized through USCC. The PCTE platform will maintain accreditations at all required classification levels to serve DoD CMF user training at the Unclassified, Secret, and Top Secret data classification levels. Platform infrastructure and licensing will be maintained to support the full DoD CMF user base.

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

	FY 2021	FY 2022	FY 2023
Title: Event Management for Persistent Cyber Training Environment (PCTE)	-	-	43.621
Description: Design, build and iterate PCTE capabilities; build upon individual training features supporting operational force training requirements; develop improved readiness functions, event scheduling, allocation and management for PCTE, to			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022		
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
include event design, planning and execution, supported by standardized training assessment tools and capabilities.				
<p>FY 2023 Plans: FY 2023 PCTE funding will focus on United States Cyber Command (USCC) priorities within platform releases to include enhancing current capability fidelity while introducing additional features. Areas of planned feature updates and enhancements include CMF learning management system, assessment and readiness capabilities, cloud based cyber terrain replication, distributed platform consolidation, cloud migration, and infrastructure consumption model implementation.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding was increased to continue capability enhancement fidelity while introducing additional features such as improved readiness and training reporting, CMF assessment and augmented traffic emulation while also addressing platform scalability.</p>				
<p>Title: Environment Operations and Management for Persistent Cyber Training Environment (PCTE)</p> <p>Description: Develop PCTE with mission-relevant terrain and realistic vignettes/scenarios as part of a system (syllabus) of individual and collective training that includes certification and real-world mission rehearsals.</p>		-	-	4.814
<p>FY 2023 Plans: FY 2023 PCTE funding will continue to focus on USCC priorities as they relate to integration with JCWA components within the JCWA data fabric in collaboration with all stakeholders. Areas of planned focus include JCWA pilots that increase mission relevant content sharing and discoverability across JCWA mission threads, in addition to enterprise compute integration for range resources within cloud cyber terrain.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding was increased to continue JCWA related integration pilots that focus on hosting mission-relevant environments on the PCTE platform within the JCWA architecture.</p>				
<p>Title: Physical and Virtual Connectivity for the Persistent Cyber Training Environment (PCTE)</p> <p>Description: PCTE has procured, installed and is maintaining Regional Compute and Storage (RCS) nodes which enable on demand, reliable, and secure virtual access from wherever participants are geographically located. Additionally, the PCTE RCS infrastructure create a core cyber exercise network and event management platform to support Cyber Mission Force (CMF) training at the Unclassified, Secret, and Top Secret data classification levels.</p>		-	-	5.510
<p>FY 2023 Plans:</p>				

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p>The PCTE Regional Compute and Storage (RCS) nodes will execute a cloud migration and continue the consumption based model while continuing to leverage DoD enterprise transport services with access on all classification levels (Top Secret to Unclassified) to perform training.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding was increased in order to execute RCS cloud migration and continue the consumption based model while continuing to leverage DoD enterprise transport services.</p>				
<p>Title: Persistent Cyber Training Environment (PCTE) Test and Evaluation</p> <p>Description: Persistent Cyber Training Environment (PCTE) integration, development, and operational testing that will include validation and verifications (V&V), operational assessments (OA), and testing in association with cyber training exercises and incorporated throughout the Product Manager (PM) Development Operations (DevOps) process. An Operational Test Authority (OTA) has been incorporated, in coordination with the Director, Operational Test and Evaluation (DOT&E), to conduct operational testing leveraging DevOps testing processes.</p> <p>FY 2023 Plans: Testing will continue in FY 2023 with integration, verification and validation testing of the PCTE capability with an emphasis on NSA Red Team testing on PCTE throughout the development cycle. The focus for FY 2023 is on verifying existing and new capability through continuous testing and cyber resiliency assessments. Test efforts in FY 2023 include the integration and testing with other platforms within the Joint Capability Warfighter Architecture (JCWA).</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding was increased to continue with integration, verification and validation testing of the PCTE capability.</p>		-	-	1.732
Accomplishments/Planned Programs Subtotals		-	-	55.677
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
<p>The Persistent Cyber Training Environment (PCTE) program employs an incremental acquisition strategy leveraging the use of existing cyber contracts and Other Transaction Authority (OTA) vehicles to provide specified capabilities that will be integrated into a cohesive training platform. The next step in the acquisition strategy is developing a long term contract vehicle that will continue enabling the PCTE platform to achieve scalability, optimization, innovation, and quality standards to meet the dynamic needs of the Cyber Mission Force (CMF) user base. The Product Manager awarded an integration focused Single Award Indefinite Delivery/Indefinite Quantity (ID/IQ) contract to serve PCTE as well as other cyber community customers called the Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology</p>				

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>

(TRIDENT) contract on Q1 FY2022. The Cyber TRIDENT contract enables PCTE to provide iterative capability provided to the Cyber Mission Forces (CMF) in Capability Drops (CDs) that either improve or add features. These CDs will be based on requirements contained and further developed as part of the PCTE Information System - Capability Development Document (IS-CDD). This is a major capability acquisition that will continue to deliver capability in line with Information Technology (IT) Box requirements strategy.

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>
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Product Development (\$ in Millions)				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			
PCTE Development and Integration Support	C/IDDQ	Various : Various	181.750	-		-		1.764	Feb 2023	-		1.764	0.000	183.514	-
PCTE Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology (TRIDENT) Contract	C/IDDQ	Various : Various	24.581	-		-		13.363	Mar 2023	-		13.363	0.000	37.944	-
PCTE Development and Integration - Other Contracts	Option/ FFP	various : various	72.097	-		-		38.818	Mar 2023	-		38.818	0.000	110.915	-
Subtotal			278.428	-		-		53.945		-		53.945	0.000	332.373	N/A

Test and Evaluation (\$ in Millions)				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			
PCTE Government Test and Evaluation	Option/ Various	various : various	13.111	-		-		1.732	Mar 2023	-		1.732	0.000	14.843	-
Subtotal			13.111	-		-		1.732		-		1.732	0.000	14.843	N/A

Remarks
Validation and Verification tests at CMF existing training events will be conducted with every capability drop utilizing Cyber Mission Force operators and representatives from

	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	291.539	-	-	55.677	-	55.677	0.000	347.216	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</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
Platform Releases (v1.0 - v8.0) - (IS-CDD 1)					Platform Releases (v1.0 - v8.0) - (IS-CDD 1)																							
PCTE v4.0									1 PCTE v4.0																			
PCTE v5.0													2 PCTE v5.0															
PCTE v6.0																	3 PCTE v6.0											
PCTE v7.0																					4 PCTE v7.0							
PCTE v8.0																					5 PCTE v8.0							
Platform Releases (v9.0 - vX.0) - (IS-CDD 2)													Platform Releases (v9.0 - vX.0) - (IS-CDD 2)															
PCTE v9.0																	6 PCTE v9.0											
PCTE v10.0																					7 PCTE v10.0							
PCTE v11.0																					8 PCTE v11.0							
PCTE v12.0																					9 PCTE v12.0							
PCTE v13.0																					10 PCTE v13.0							

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Platform Releases (v1.0 - v8.0) - (IS-CDD 1)	2	2022	2	2024
PCTE v4.0	2	2022	2	2022
PCTE v5.0	4	2022	4	2022
PCTE v6.0	2	2023	2	2023
PCTE v7.0	4	2023	4	2023
PCTE v8.0	2	2024	2	2024
Platform Releases (v9.0 - vX.0) - (IS-CDD 2)	4	2024	4	2026
PCTE v9.0	4	2024	4	2024
PCTE v10.0	2	2025	2	2025
PCTE v11.0	4	2025	4	2025
PCTE v12.0	2	2026	2	2026
PCTE v13.0	4	2026	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Army										Date: April 2022		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>				Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</i>			
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
FA8: <i>Cyberspace Operations Forces and Force Support</i>	-	50.525	55.895	-	-	-	-	-	-	-	0.000	106.420
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Under PE 0305251A / *Cyberspace Operations Forces and Force Support* Project FA8 / *Cyberspace Operations Forces and Force Support* moves to Project DD3 in FY2023.

A. Mission Description and Budget Item Justification

Persistent Cyber Training Environment (PCTE) supports the United States Cyber Command (USCC) by enabling the critical need for the DoD Cyber Mission Force (CMF) to train at the individual, team, and force level. PCTE provides the DoD CMF with a standardized training capability that maximizes shared content across the Services to include emulated network environments and has the ability to connect to other range environments and cyber training assets. The PCTE platform is aligned to the outputs of the Office of the Under Secretary of Defense for Acquisition & Sustainment OUSD (A&S) and Chairman of the Joint Chiefs of Staff (CJCS) J6 led, "Cyber Range Evaluation of Alternatives (EOA) Findings and Issue Paper Deliberations," dated 17 November 2015. The Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) was designated as the DoD Acquisition Lead for the PCTE and the program is directed by the 2016 National Defense Authorization Act, Section 1645. With the Joint Requirements Oversight Council (JROC) validation of the Information System - Capability Development Document (IS-CDD) on 4 November 2019, the PCTE program quickly achieved Milestone B on 6 December 2019. Through ongoing rapid prototyping efforts, the PCTE platform has fulfilled the critical need for a CMF standardized training capability upon release of PCTE Version 2 in Fourth Quarter Fiscal Year 2020, and continues to do so with ongoing version releases.

FY 2023 PCTE funding will focus on United States Cyber Command (USCC) priorities within platform releases to include enhancing current capability fidelity while introducing additional features. Areas of planned feature updates and enhancements include CMF learning management system, assessment and readiness capabilities, cloud based cyber terrain replication, distributed platform consolidation, cloud migration, and infrastructure consumption model implementation. The PCTE platform will continue collaboration with all stakeholders within the Joint Cyber Warfighting Architecture (JCWA), and continue initial integration efforts across the JCWA portfolio as prioritized through USCC. The PCTE platform will maintain accreditations at all required classification levels to serve DoD CMF user training at the Unclassified, Secret, and Top Secret data classification levels. Platform infrastructure and licensing will be maintained to support the full DoD CMF user base.

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

	FY 2021	FY 2022	FY 2023
Title: Event Management for Persistent Cyber Training Environment (PCTE)	37.897	40.031	-
Description: Develop event scheduling, allocation, and management function for PCTE, to include event design, planning and execution, supported by standardized training assessment tools and capabilities.			
FY 2022 Plans:			

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p>PCTE capabilities will continue to support the full DoD Cyber Mission Force (CMF) user base. New capabilities and features, as prioritized by the United States Cyber Command (USCC) and CMF feedback, will include enhanced CMF assessment capabilities, traffic generation augmentation, platform scalability and resourcing, content authoring and sharing tools, and pilots for infrastructure utility models.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Under PE 0305251A / Cyberspace Operations Forces and Force Support Project FA8 / Cyberspace Operations Forces and Force Support moves to Project DD3 in FY 2023.</p>				
<p>Title: Environment Operations and Management for Persistent Cyber Training Environment (PCTE)</p> <p>Description: Develop PCTE with realistic vignettes/scenarios as part of a system (syllabus) of individual and collective training that includes certification and real-world mission rehearsals.</p> <p>FY 2022 Plans: Will continue to maintain PCTE virtual environments with an emphasis on collaboration with all stakeholders within the Joint Cyber Warfighting Architecture (JCWA), and conduct initial pilot and exploratory requirements definition efforts across the JCWA portfolio as prioritized through United States Cyber Command (USCC).</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Under PE 0305251A / Cyberspace Operations Forces and Force Support Project FA8 / Cyberspace Operations Forces and Force Support moves to Project DD3 in FY 2023.</p>		4.244	4.657	-
<p>Title: Physical and Virtual Connectivity for the Persistent Cyber Training Environment (PCTE)</p> <p>Description: PCTE has procured, installed and is maintaining Regional Compute and Storage (RCS) nodes which enable on-demand, reliable, and secure virtual access from wherever participants are geographically located. Additionally, the PCTE RCS infrastructure create a core cyber exercise network and event management platform to support Cyber Mission Force (CMF) training at the Unclassified, Secret, and Top Secret data classification levels.</p> <p>FY 2022 Plans: The PCTE Regional Compute and Storage (RCS) nodes will continue infrastructure enhancements through a migration to a consumption based model while continuing to leverage DoD enterprise transport services with access on all classification levels (Top Secret to Unclassified) to perform training.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement:</p>		6.592	5.500	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
Under PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i> Project FA8 / <i>Cyberspace Operations Forces and Force Support</i> moves to Project DD3 in FY 2023.				
Title: Persistent Cyber Training Environment (PCTE) Test and Evaluation		1.792	1.707	-
Description: Persistent Cyber Training Environment (PCTE) integration, development, and operational testing that will include validation and verifications (V&V), operational assessments (OA), and testing in association with cyber training exercises and incorporated throughout the Product Manager (PM) Development Operations (DevOps) process. An Operational Test Authority (OTA) has been incorporated, in coordination with the Director, Operational Test and Evaluation (DOT&E), to conduct operational testing leveraging DevOps testing processes.				
FY 2022 Plans: Testing will continue in FY 2022 with integration, verification and validation testing of the PCTE capability. The focus for FY 2022 is on verifying existing and new capability through continuous testing and cyber resiliency assessments. Test efforts in FY22 include the initial integration and testing with other platforms within the Joint Capability Warfighter Architecture (JCWA). PCTE will integrate Persistent Cyber Operations, conducting continuous, blue team, red team, and purple team cyber assessments				
FY 2022 to FY 2023 Increase/Decrease Statement: Under PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i> Project FA8 / <i>Cyberspace Operations Forces and Force Support</i> moves to Project DD3 in FY 2023.				
Accomplishments/Planned Programs Subtotals		50.525	51.895	-
		FY 2021	FY 2022	
Congressional Add: Program increase - Army Cyber Institute		-	4.000	
FY 2022 Plans: Program increase - Army Cyber Institute: The funding will be used to create a multi-organization research initiative with academic, government, and industry partners focused on critical infrastructure resilience. The research will continue development of the Army Cyber Institute's Jack Voltaic project through efforts such as: development of automated training tools; assessment of installation force projection resiliency; threatcasting research to analyze future critical infrastructure threats; analysis of critical infrastructure software and firmware through code cloning detection techniques; legal and policy gap evaluations and proposals; analysis of data privacy threats to critical infrastructure and installations; development, testing and evaluation of artificial intelligence enabled models and tools to detect, characterize and respond to attacks against critical infrastructure other cyber-physical systems; and emerging technology (e.g., block-chain) uses with critical infrastructure protection systems. Efforts in FY22 will focus on development, planning, and				

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	FY 2021	FY 2022
implementation of the research initiative. Efforts in FY23 will focus on research, development, analysis, and reporting.		
Congressional Adds Subtotals	-	4.000

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

N/A

Remarks

B65010-Other Procurement Army 2 (OPA2) - In FY 2021, OPA funds reprogrammed to Operations and Maintenance Army (OMA) (APE 151251000, MDEP VLWA) for software licensing for cyber training applications. PCTE has procured and installed the appropriate hardware infrastructure footprint to enable the platform to serve the Cyber Mission Force user base.

D. Acquisition Strategy

The Persistent Cyber Training Environment (PCTE) program employs an incremental acquisition strategy leveraging the use of existing cyber contracts and Other Transaction Authority (OTA) vehicles to provide specified capabilities that will be integrated into a cohesive training platform. The next step in the acquisition strategy is developing a long term contract vehicle that will continue enabling the PCTE platform to achieve scalability, optimization, innovation, and quality standards to meet the dynamic needs of the Cyber Mission Force (CMF) user base. The Product Manager awarded an integration focused Single Award Indefinite Delivery/Indefinite Quantity (ID/IQ) contract to serve PCTE as well as other cyber community customers called the Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology (TRIDENT) contract on Q1 FY2022. The Cyber TRIDENT contract enables PCTE to provide iterative capability provided to the Cyber Mission Forces (CMF) in Capability Drops (CDs) that either improve or add features. These CDs will be based on requirements contained and further developed as part of the PCTE Information System - Capability Development Document (IS-CDD).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0305251A / Cyberspace Operations Forces and Force Support				FA8 / Cyberspace Operations Forces and Force Support							
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	TBD	Various : Various	2.300	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			2.300	-		-		-		-		-	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PCTE Development and Integration Support	C/IDIQ	Various : Various	178.414	1.636	Feb 2021	1.700	Feb 2022	-		-		-	Continuing	Continuing	Continuing
PCTE Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology (TRIDENT) Contract	C/IDIQ	Various : Various	-	-		12.953	May 2022	-		-		-	Continuing	Continuing	Continuing
PCTE Development and Integration - Other Contracts	Option/ FFP	Various : Various	-	47.097	Mar 2021	35.535	Nov 2021	-		-		-	Continuing	Continuing	Continuing
Enhanced Vehicle Security System	C/TBD	Aberdeen Proving Ground : Aberdeen, Maryland	6.509	-		-		-		-		-	0.000	6.509	-
Subtotal			184.923	48.733		50.188		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Congressional Add: ACI	TBD	TBD : TBD	-	-		4.000		-		-		-	0.000	4.000	-
Subtotal			-	-		4.000		-		-		-	0.000	4.000	N/A

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</i>
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Test and Evaluation (\$ in Millions)				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			
PCTE Government Test and Evaluation	Various	Various : Various	9.612	1.792	Mar 2021	1.707	Mar 2022	-		-		-	Continuing	Continuing	Continuing
Subtotal			9.612	1.792		1.707		-		-		-	Continuing	Continuing	N/A

Remarks
Validation and Verification tests at CMF existing training events will be conducted with every capability drop utilizing Cyber Mission Force operators and representatives from the Operational Test Authority.

	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		196.835	50.525	55.895	-	-	-	Continuing	Continuing	N/A

Remarks
Under PE 0305251A / *Cyberspace Operations Forces and Force Support* Project FA8 / *Cyberspace Operations Forces and Force Support* moves to Project DD3 in FY 2023.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</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
Platform Releases (v1.0 – v8.0) - (IS-CDD 1)	Platform Releases (v1.0 – v8.0) - (IS-CDD 1)																											
PCTE v3.0	1 PCTE v3.0																											
PCTE v4.0					2 PCTE v4.0																							
PCTE v5.0									3 PCTE v5.0																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prototype Releases (A-C) ? (Risk Reduction Efforts)	4	2018	4	2019
PCTE vA	4	2018	4	2018
PCTE vB	2	2019	2	2019
PCTE vC	4	2019	4	2019
Platform Releases (v1.0 ? v8.0) - (IS-CDD 1)	2	2020	4	2025
PCTE v1.0	2	2020	2	2020
PCTE v2.0	4	2020	4	2020
PCTE v3.0	2	2021	2	2021
PCTE v4.0	2	2022	2	2022
PCTE v5.0	4	2022	4	2022