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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army **Date:** February 2020

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605054A / Emerging Technology Initiatives
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	46.451	37.696	294.739	-	294.739	239.640	165.699	59.664	60.389	0.000	904.278
FL3: Rapid Capability Development and Maturation	-	46.451	37.696	284.184	-	284.184	228.905	154.742	48.473	48.960	0.000	849.411
FL7: Rapid Capability Support	-	0.000	0.000	10.555	-	10.555	10.735	10.957	11.191	11.429	0.000	54.867

A. Mission Description and Budget Item Justification

Emerging Technology Initiatives will fund rapid prototyping and delivery of residual combat capability to enable the Army Modernization Priorities and the National Defense Strategy. These efforts include long range precision fires, air and missile defense, ground, aviation, soldier, command, control, computers, communications, cyber, intelligence surveillance & reconnaissance missions. The primary goal is to deliver experimental prototypes to an unit of action through a collaborative and accelerated acquisition process. Technologies will be demonstrated in relevant environments, performing tactical/operational scenarios.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	42.813	45.896	46.961	-	46.961
Current President's Budget	46.451	37.696	294.739	-	294.739
Total Adjustments	3.638	-8.200	247.778	-	247.778
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-8.200	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	3.638	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Adjustments to Budget Years	-	-	247.778	-	247.778

Change Summary Explanation

The \$247.945 million increase will primarily be used to develop, integrate and procure Directed Energy prototype systems supporting the Maneuver-Short Range Air Defense (M-SHORAD) mission. These prototype systems will include 50 kW-class lasers on an operational platoon of four Stryker vehicles in FY 2022. RCCTO Core Labor moved from PE0604798A DZ6 to Project FL7 in FY 2021 for greater transparency.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Army										Date: February 2020		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>				Project (Number/Name) FI3 / <i>Rapid Capability Development and Maturation</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
FI3: <i>Rapid Capability Development and Maturation</i>	-	46.451	37.696	284.184	-	284.184	228.905	154.742	48.473	48.960	0.000	849.411
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project will focus on high-priority, threat-based projects with the intent to deliver an operationally effective capability in the near- and mid-terms. Efforts will include accelerated materiel development and competitive prototyping based on anticipated and emerging threats and opportunities. This Project funds an improved mechanism to effectively confront emerging threats and advance America's military dominance in accordance with the National Defense Strategy. Efforts include development, acquisition, assessment, maturation, and transition of prototype technologies to acquisition programs. Current efforts include Directed Energy; Long Range Precision Fires; Air and Missile Defense; Cyber; Artificial Intelligence; Signals Intelligence (SIGINT); Unmanned Aerial Systems (UAS) and Counter UAS (C-UAS); Communications; Survivability; and other high priority emerging threats and opportunities as designated by the RCCTO Board of Directors. Funds may also allow for acceleration of critical capabilities to counter urgent and emerging threats for transition to programs of record. Funding may also be used to acquire specialized expertise to execute an initiative.

The Army RCCTO expedites the fielding of critical combat materiel capabilities to the Warfighter to meet urgent needs and support the Army modernization strategy. The RCCTO assesses Commercial-Off-The Shelf (COTS), Government Off-The- Shelf (GOTS), and Non-Developmental Item (NDI) (non-standard equipment) solutions for modification and/or integration to address changes in contested environments with enduring materiel solutions for forces deployed globally. The RCCTO procures prototypes and evaluates solutions to field residual combat capability to a unit of action and transition the capability to an acquisition program for production and sustainment when it is an enduring need.

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

	FY 2019	FY 2020	FY 2021
Title: Maturation, Prototyping, Assessment, and Integration of Emerging and Essential Technologies	46.451	35.984	284.184
Description: This effort selects technologies that show high promise for advancing and accelerating capabilities required under acquisition programs and develops and evaluates associated prototypes for accelerated identification, assessment, and transition to an acquisition program for production and fielding. It also demonstrates integrated technologies within a high fidelity and realistic operating environment and transitions them to a formal program of record on an accelerated basis. includes air and ground platform integration.			
FY 2020 Plans: These funds will be used to identify, develop, procure, modify, and evaluate prototypes providing capability prioritized by the Board of Directors (BOD) in the areas of Artificial Intelligence Cyber, EW, SIGINT, UAV, C-UAV, Communications, PNT, Survivability, Long Range Precision Fires, and other critical capability gaps. Funding supports development and procurement of			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<p>prototypes, system modification, engineering support, platform integration, integration materials, field service representation, early acquisition documentation, training, and developmental and operational testing needed to initiate limited fielding and/or transition to a procurement ready solution for acquisition. This also funds RCO labor (Government matrix and contractor), service contracts, travel, training, supplies, facilities and Information Technology (IT) required to execute initiative.</p> <p>FY 2021 Plans: These funds will be used to identify, develop, procure, modify, evaluate, and deliver prototypes providing capability prioritized by the Board of Directors (BOD) in the areas of Directed Energy; Long Range Precision Fires; Air and Missile Defense; Cyber; Artificial Intelligence; Signals Intelligence (SIGINT); Unmanned Aerial Systems (UAS) and Counter UAS (C-UAS); Communications; Survivability; and other critical capability gaps. Funding supports development and procurement of prototypes, system modification, engineering support, platform integration, integration materials, field service representation, early acquisition documentation, training, and developmental and operational testing needed to initiate limited fielding and/or transition to a procurement ready solution for acquisition. This also funds RCCTO matrix and contractor labor, service contracts, travel, security, training, supplies, facilities, and Information Technology (IT) required to execute initiatives.</p> <p>Specifically, significant FY 2021 funds will be used to procure 3 Directed Energy prototype systems supporting the Maneuver-Short Range Air Defense (M-SHORAD) mission. Additionally, funds projects selected from RCCTO Innovation Days, an event that reviews innovative solutions that have the potential to reduce near and mid-term operational risk against near-peer adversaries and push traditional boundaries to deliver breakthrough prototypes with residual combat capability.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The \$246.488 million increase will procure 3 Directed Energy prototype systems supporting the Maneuver-Short Range Air Defense (M-SHORAD) mission.</p>				
<p>Title: FY 2020 SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC 638</p> <p>FY 2020 Plans: Funding transferred in accordance with Title 15 USC 638</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638</p>		-	1.712	-
Accomplishments/Planned Programs Subtotals		46.451	37.696	284.184

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy The Army RCCTO capitalizes on current and emerging technologies to provide near-term and mid-term solutions to address emerging threats and high impact capability opportunities for U.S. Army Forces deployed globally. This is accomplished in one of two ways: 1) adapting COTS/GOTS/NDI equipment to meet operational needs and 2) developing emerging deployable capability through research and development organizations, academia, and industry. The RCCTO uses streamlined acquisition methods, processes and techniques to rapidly acquire capability; these methods vary by project. The RCCTO has procurement authority and an in-house contracting staff, with the flexibility to use both traditional and non-traditional contracting approaches. To reach non-traditional vendors, RCCTO will use non-standard contracting methods, such as Other Transaction Authority agreements. Where practicable, prototypes will be acquired using competitive procedures. Soldier touchpoints will be conducted to provide feedback in support of Army requirements generation, prototype maturation, fielding residual combat capability to a unit of action, and future capability development. When designated by the RCCTO Board of Directors, projects will be transitioned to an approved acquisition program for production and sustainment.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605054A / Emerging Technology Initiatives				F13 / Rapid Capability Development and Maturation							
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Matrix, Contractor	Various	TBD : Various	-	-		9.461		27.275		-		27.275	0.000	36.736	-
Facilities, IT/Supplies, Travel, Training	Various	TBD : Various	-	-		3.255		5.383		-		5.383	0.000	8.638	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		1.712		-		-		-	0.000	1.712	-
Subtotal			-	-		14.428		32.658		-		32.658	0.000	47.086	N/A
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Emerging Technologies Development	Various	TBD : Various	-	22.378		9.658		205.530		-		205.530	0.000	237.566	-
OSD - EW/Cyber Ground PoDs Development	Various	TBD : Various	-	8.975		-		-		-		-	0.000	8.975	-
Subtotal			-	31.353		9.658		205.530		-		205.530	0.000	246.541	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Emerging Technologies Engineering Support	TBD	TBD : Various	-	3.098		5.391		9.014		-		9.014	0.000	17.503	-
Subtotal			-	3.098		5.391		9.014		-		9.014	0.000	17.503	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
OSD - EW/Cyber Ground PoDs Test	TBD	TBD : Various	-	3.000		-		-		-		-	0.000	3.000	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Prototype Procurement FY19				█																								
RCCTO Begin Deployment to USAREUR Units				█																								
RCCTO OSD Operational Assessment FY19	█	█	█	█																								
RCCTO OSD Operational Assessment FY20								█																				
RCCTO OSD Effort Integration FY20								█																				
RCCTO OA SIGINT Sensors								█																				
RCCTO Long Range Cannon								█																				
RCCTO Optical Augmentation								█																				
RCCTO Cyber Counter UAS-System								█																				
RCCTO - Award Contract for 3 DE-MSHORAD Prototype Fabrication												▲																
RCCTO - Procure sub-systems												▲																
RCCTO - Initiate Platform #2 Integration																▲												
RCCTO - Sector/Integration Testing 2nd Quarter												▲																

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
RCCTO - Sector/Integration Testing 4th Quarter												5																
RCCTO - Side Testing												6																

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prototype Procurement FY19	3	2019	4	2019
RCCTO Begin Deployment to USAREUR Units	4	2019	4	2019
RCCTO OSD Operational Assessment FY19	1	2019	4	2019
RCCTO OSD Operational Assessment FY20	3	2020	4	2020
RCCTO OSD Effort Integration FY20	1	2020	2	2020
RCCTO OA SIGINT Sensors	1	2020	3	2020
RCCTO Long Range Cannon	1	2020	4	2020
RCCTO Optical Augmentation	1	2020	2	2020
RCCTO Cyber Counter UAS-System	1	2020	3	2020
RCCTO - Award Contract for 3 DE-MSHORAD Prototype Fabrication	1	2021	1	2021
RCCTO - Procure sub-systems	1	2021	1	2021
RCCTO - Initiate Platform #2 Integration	4	2021	4	2021
RCCTO - Sector/Integration Testing 2nd Quarter	2	2021	2	2021
RCCTO - Sector/Integration Testing 4th Quarter	4	2021	4	2021
RCCTO - Side Testing	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Army **Date:** February 2020

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>				Project (Number/Name) FL7 / <i>Rapid Capability Support</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>FL7: Rapid Capability Support</i>	-	0.000	0.000	10.555	-	10.555	10.735	10.957	11.191	11.429	0.000	54.867
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

RCCTO Core Labor funding transitioned from PE 0604798A.

A. Mission Description and Budget Item Justification

This project funds rapid prototyping and delivery of residual combat capability to enable the Army Modernization Priorities and the National Defense Strategy. These efforts include long range precision fires, air and missile defense, ground, aviation, Soldier, cyber, and command, control, communications, computers, intelligence, surveillance & reconnaissance (C4ISR) missions. The primary goal is to deliver experimental prototypes to a unit of action through a collaborative and accelerated acquisition process. Technologies will be demonstrated in relevant environments, performing tactical/operational scenarios. Efforts will focus on high-priority, threat-based projects with the intent to deliver an operationally effective capability in the near- and mid-terms. Efforts will include accelerated materiel development and competitive prototyping based on anticipated and emerging threats and opportunities. This Project provides the Army an improved mechanism to effectively confront emerging threats and advance America's military dominance in accordance with the National Defense Strategy. Efforts include development, acquisition, assessment, maturation, and transition of prototype technologies to acquisition programs in Directed Energy; Long Range Precision Fires; Air and Missile Defense; Cyber; Artificial Intelligence; Signals Intelligence (SIGINT); Unmanned Aerial Systems (UAS) and Counter UAS (C-UAS); Communications; Survivability; and other high priority emerging threats and opportunities as designated by the RCCTO Board of Directors. Funds may also allow for acceleration of critical Program of Record capabilities to counter urgent and emerging threats. Funding may also be used to acquire specialized expertise to execute an initiative.

The Army RCCTO expedites the fielding of critical combat materiel capabilities to the Warfighter to meet urgent needs and support the Army modernization strategy. The RCCTO assesses Commercial-Off-The Shelf (COTS), Government Off-The- Shelf (GOTS), and Non-Developmental Item (NDI) (non-standard equipment) solutions for modification and/or integration to address changes in contested environments with enduring materiel solutions for forces deployed globally. The RCCTO procures prototypes and evaluates solutions to field residual combat capability to a unit of action and transition the capability to an acquisition program for production and sustainment.

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

	FY 2019	FY 2020	FY 2021
Title: Core Labor	-	-	10.555
Description: Funding will be for Core Labor.			
FY 2021 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
These funds will be used for Core Labor in support of rapid prototyping and delivery of residual combat capability to enable long range precision fires, air and missile defense, ground, aviation, Soldier, cyber and C4ISR missions.				
FY 2020 to FY 2021 Increase/Decrease Statement: RCCTO Core Labor transferred from PE 0604798A Project DY7 to PE 0605054A Project FL7.				
Accomplishments/Planned Programs Subtotals		-	-	10.555
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy N/A				

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>	

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Core Labor																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Core Labor	1	2021	4	2021