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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	19.148	-	19.148	-	-	-	-	-	-
CQ5: C-sUAS Joint New Capabilities Development	-	-	-	7.918	-	7.918	-	-	-	-	-	-
CQ6: C-sUAS Joint Enabling Capabilities Development	-	-	-	11.230	-	11.230	-	-	-	-	-	-

**Note**

This is a new start in FY 2022.

Prior year funding executed from PE0604741A FG5

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

The Counter- small Unmanned Aircraft Systems (C-sUAS) effort is in response to the Department of Defense's (DoD) Joint Requirements Oversight Council Memorandum (JROC-M) requirement for identification, development, testing, evaluation, and integration of technologies to defeat small Unmanned Aircraft System threats across the DoD. The C-sUAS efforts provide warfighters the ability to comprehensively detect, track, identify, and defeat enemy Group 1, 2 and 3 UAS platforms. The efforts will be joint prototyping efforts to provide integrated solutions to meet the needs of the Military Services and DoD Agencies against emerging C-sUAS threats.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	19.148	-	19.148
Total Adjustments	0.000	0.000	19.148	-	19.148
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	19.148	-	19.148

**Change Summary Explanation**

This is a new start in FY22

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development				<b>Project (Number/Name)</b> CQ5 / C-sUAS Joint New Capabilities Development			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CQ5: C-sUAS Joint New Capabilities Development	-	-	-	7.918	-	7.918	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This is a new start in FY 2022.

Prior year funding executed from PE 0604741A FG5

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

The Counter- small Unmanned Aircraft Systems (C-sUAS) effort will demonstrate, prototype, and experiments with technologies and concepts to enable or accelerate their transition to acquisition programs. The efforts will address the gap between initial technology or concept development and quickly move into a warfighter capability. Efforts will explore new concepts and their applications in potential future operating environments within a systems-of-systems context. These joint prototypes will inform future requirements and acquisition to address the evolving Small Unmanned Aircraft System threats and new environments to which C-sUAS systems must be deployed.

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

	FY 2020	FY 2021	FY 2022
<b>Title:</b> C-sUAS Prototyping New Joint Capabilities	-	-	7.918
<b>Description:</b> Prototyping detection and identification; defeat; and command and control technologies to meet the C-sUAS capability gaps. Prototypes will address operational requirements identified by the JROCM 078-20 and prioritized critical capability gaps identified by the DoD EA Governance.			
<b>FY 2022 Plans:</b> Continued prototype development of joint capabilities to address capability gaps in detected, identified, defeat, and enhance command and control. Technology include prototyping of High Power Microwave Ground; Command and Control Decision aids to include Automation, Autonomy, and Human-Machine Teaming; Electronic Warfare detect and defeat; High Energy Lasers; and C-sUAS Interceptors.			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Joint funding line created to address joint capabilities.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	7.918

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ5 / C-sUAS Joint New Capabilities Development

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Joint C-sUAS new capability prototyping will address the Joint Requirements Oversight Council Memorandum (JROCM) 078-20 and be approved by the Department of Defense C-sUAS Executive Agent (EA) Governance. The C-sUAS EA Governance will approve the prototyping effort to meet identified gap and the joint capability will be funded under this Program Element. The Joint Counter-sUAS Office will identify new technologies within industry and Government S&T organization and leverage the flexibility of the Adaptive Acquisition Framework, and Service Acquisition Policies, and pursue a combination of acquisition pathways to deliver prototypes for evaluation and future decisions. Prototypes may be deployed for additional combat evaluations and provide residual capabilities to the warfighter.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date: May 2021</b>
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	<b>Project (Number/Name)</b> CQ5 / C-sUAS Joint New Capabilities Development

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
HPM Ground Increment 1 Prototyping													HPM Ground Increment 1 Prototyping															
HPM Ground Increment 1 System Test													HPM Ground Increment 1 System Test															
HPM Ground Increment 1 Prototype Delivery													1				HPM Ground Increment 1 Prototype Delivery											
C2 Decision Aids Prototyping																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	<b>Project (Number/Name)</b> CQ5 / <i>C-sUAS Joint New Capabilities Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
HPM Ground Increment 1 Prototyping	1	2022	4	2022
HPM Ground Increment 1 System Test	4	2022	1	2023
HPM Ground Increment 1 Prototype Delivery	3	2023	3	2023
C2 Decision Aids Prototyping	1	2022	4	2025

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development				<b>Project (Number/Name)</b> CQ6 / C-sUAS Joint Enabling Capabilities Development			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
CQ6: C-sUAS Joint Enabling Capabilities Development	-	-	-	11.230	-	11.230	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This is a new start in FY 2022.

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

The Counter- small Unmanned Aircraft Systems (C-sUAS) enabling efforts will support the Joint C-sUAS Office in identify and prioritizing joint gaps and solutions; support Military Service programs management members to conduct joint development, acquisition, and sustainment; and identify key technologies available for transition to the warfighter, while minimize duplications and redundancy. These joint enabling efforts will inform future requirements and acquisition to address the evolving Small Unmanned Aircraft System threats and new environments to which C-sUAS systems must be deployed.

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

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Title:</b> Joint Studies and Analysis</p> <p><b>Description:</b> Execution of JCO studies to analyze current and future capability needs to aid the advancement and transition of advanced technologies by providing the credible evidence decision makers need to make sound strategic decision and investment choices. Concepts to be analyzed included, but not limited to, application of C-sUAS technologies in new environments, analysis of joint systems architectures, artificial intelligence and machine learning applications, directed energy weapons application, and integration into multi-domain operations. Studies and Analysis will improve the effectiveness of C-sUAS operation by developing concepts that generate new information to address challenging threats of the future and aid in identifying advanced technologies for prototyping and development.</p> <p><b>FY 2022 Plans:</b> Execute studies to explore promising concepts and enabling technologies. Activities may include analysis, studies, experimentation, modeling and simulation, virtual prototyping, and workshops. Specific studies are not detailed until late FY21 to ensure they are relevant to FY22 and FY23 decisions.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> New program element to capture Joint requirements</p>	-	-	3.310
<p><b>Title:</b> Common Test Range</p>	-	-	3.520

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	<b>Project (Number/Name)</b> CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Description:</b> Execution of JCO prototyping and experimentation of a Department of Defense common test ranges to explore new concepts and application in current and future operating environments. Test ranges must adapt to uncertainty of the evolving threat, military application of C-sUAS, and new commercial technology impacts to the battlefield environment. This ensures C-sUAS technology is adequately assessed against a realistic environment and deliver reliable capabilities to the warfighter. These advances in ranges will support the Department of Defense testing activities for C-sUS programs. This also includes updates to the DoD C-sUAS Common Test protocol to be used in all Joint C-sUAS testing activities to ensure consistency of data collection before being deployed.</p> <p><b>FY 2022 Plans:</b> Execute test range equipment prototyping of urban environmental conditions to include 5G technology, complex electro-magnetic environment, and urban terrain. Activities include prototyping range equipment, experimentation, and analysis of the effectiveness of tactics, techniques, and procedures. This will include iterative updates to the C-sUAS Test protocol.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> New program element to capture Joint requirements</p>			
<p><b>Title:</b> Joint Assessments and Demonstrations</p> <p><b>Description:</b> Execute demonstrations and assessments of new C-sUAS technology to explore new concepts, new applications of existing systems, and new industry technologies. New concepts and technologies demonstrations will address future capability gaps and acquisition programs to maintain pace with evolving threats and employment environments.</p> <p><b>FY 2022 Plans:</b> Execute semi-annual demonstrations and assessments of C-sUAS technology. Demonstrations will focus on capability gaps identified by the JCO and the Executive Agent C-sUAS Governance.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> New program element to capture Joint requirements</p>	-	-	4.400
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	11.230

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

N/A

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	<b>Project (Number/Name)</b> CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>

**D. Acquisition Strategy**

The Joint C-sUAS enabling efforts will be approved by the Department of Defense C-sUAS Executive Agent (EA) Governance. The C-sUAS EA Governance will approve efforts supporting future DoD decisions and identify gaps in current systems. The Joint Counter-sUAS Office will identify key efforts that support the mission and minimize redundancy among the Services. The Army Rapid Capabilities and Critical Technology Office (RCCTO) has been identified to provide material and acquisition support to the JCO to address enabling capability needs. Army RCCTO will semi-annually solicit industry solutions against the C-sUAS gaps and hold demonstrations at an identified C-sUAS common test range. Identified solutions from the Semi-annual Demonstration will potentially transition to modify existing C-sUAS programs, create new programs for development under PE0604531A CQ7, identify and create prototyping projects under PE0604531A CQ5, or transition to Service Science and Technology projects for further maturation. The Army RCCTO will acquire necessary equipment and evaluate new environmental conditions for the C-sUAS test ranges to ensure testing consistency and realistic conditions. Once established and validated as a test range capability, the JCO will transition long term support to the DoD's Test Resource Management Center.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development				CQ6 / C-sUAS Joint Enabling Capabilities Development							
<b>Management Services (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Program Management	TBD	US Army Rapid Capabilities and Critical Technology Office : Fort Belvoir, VA	-	-		-		0.880		-		0.880	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		-		0.880		-		0.880	Continuing	Continuing	N/A
<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Common Test Range	TBD	Army Rapid Capabilities and Critical Technologies Office : Fort Belvoir, VA	-	-		-		3.300		-		3.300	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		-		3.300		-		3.300	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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
Joint Studies and Analysis	TBD	Army Rapid Capabilities and Critical Technologies Office : Fort Belvoir, VA	-	-		-		3.310		-		3.310	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		-		3.310		-		3.310	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2022 Army</b>												<b>Date: May 2021</b>			
<b>Appropriation/Budget Activity</b> 2040 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development				<b>Project (Number/Name)</b> CQ6 / C-sUAS Joint Enabling Capabilities Development							
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Joint Assessment and Demonstration	TBD	Army Rapid Capabilities and Critical Technologies Office : Fort Belvoir, VA	-	-		-		3.740		-		3.740	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		-		3.740		-		3.740	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		0.000		11.230		-		11.230	Continuing	Continuing	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	<b>Project (Number/Name)</b> CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
Joint Studies									Joint Studies execution																			
Common Test Range									Common Test Range assessments																			
Joint Assessment and Demos									Joint Assessment and Demonstration																			

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	<b>Project (Number/Name)</b> CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Joint Studies	1	2022	4	2026
Common Test Range	1	2022	4	2025
Joint Assessment and Demos	1	2022	4	2026