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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	11.010	7.189	11.567	14.185	-	14.185	14.758	10.125	10.399	10.602	Continuing	Continuing
2073: <i>DRAKE 2.0 C-UAS Afloat</i>	0.000	5.783	10.194	12.531	-	12.531	13.208	8.795	9.047	9.222	Continuing	Continuing
3241: <i>Counter Unmanned Aircraft Systems (C-UAS)</i>	11.010	1.406	1.373	1.654	-	1.654	1.550	1.330	1.352	1.380	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Counter Unmanned Aircraft System (C-UAS) program employs integrated C-UAS solution sets designed to protect high value or critical Naval assets from surveillance, or hostile threats posed from the inadvertent or unlawful misuse of unmanned aircraft systems (UAS). The C-UAS program provides an integrated Family of Systems (FoS) employing advanced target discrimination and defeat capabilities to meet fleet requirements. More details available at a higher classification level.

FY 2025 funding is requested to continue management and implementation of system assessment. Provide program management and systems engineering support for the technology development and acquisition strategy for fielding material solution. Funding provides for refinement of material solutions, threat assessments, identification and development of advanced target discrimination, defeat capabilities, and prototype development for integration into the C-UAS FoS.

Continues refinement of open architecture solution and interoperability standards for a C-UAS FoS. In partnership with the Joint C-UAS Office (JCO), will identify or develop additional detect and deter capabilities to integrate into the C-UAS FoS. As the JCO designated CORIAN Acquisition Lead, continued development, implementation and integration of additional sensor modalities to improve system detect/ID/track/defeat capabilities. Continues efforts to improve interoperability between ashore and afloat C-UAS systems.

B. Program Change Summary (\$ in Millions)	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	7.438	11.567	14.396	-	14.396
Current President's Budget	7.189	11.567	14.185	-	14.185
Total Adjustments	-0.249	0.000	-0.211	-	-0.211
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.250	0.000			
• Rate/Misc Adjustments	0.001	0.000	-0.211	-	-0.211

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy Date: March 2024

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)*

R-1 Program Element (Number/Name)
PE 0604636N / *Counter Unmanned Aircraft System (C-UAS)*

Change Summary Explanation

FY 2024 No changes
FY 2025 -\$.211M miscellaneous adjustments

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 2073 / <i>DRAKE 2.0 C-UAS Afloat</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2073: <i>DRAKE 2.0 C-UAS Afloat</i>	0.000	5.783	10.194	12.531	-	12.531	13.208	8.795	9.047	9.222	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DRAKE Counter Unmanned Aircraft Systems (CUAS) is an Electronic Warfare (EW) Force Protection system designed to detect, identify, track, and defeat small Unmanned Aircraft Systems (sUAS) for afloat naval forces. To meet the non-kinetic requirements established in the OPNAV Top Level Requirement (TLR) for Afloat CUAS, the DRAKE system will be upgraded with improved radios, processors, and display units.

The program will utilize Commercial Off-The-Shelf (COTS) hardware, software, and advanced techniques to develop, test, and integrate into DRAKE. Increment 1 upgrades will focus on refreshing the core technology to replace legacy hardware with the latest COTS processors/controllers, which will significantly increase signal processing speed and bandwidth (NextGen SDR). These improvements will enable the system to counter more advanced commercial sUAS efficiently. A COTS tablet-like Graphical User Interface (GUI) called the Control Display Unit (CDU) 2.0 will replace the legacy CDU, providing enhanced visual tracking and identification data of UAS. This upgrade will ultimately improve situational awareness and signal analysis for the warfighter. In Increment 2, the DRAKE system will be integrated with ships' Command and Control with optimized antennas for C-sUAS mission to enhance ships' situational awareness and prosecution of UAS threats.

Prior to FY23, DRAKE C-UAS funding can be found in PE 0603654N/Project 3177.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: DRAKE	5.783	10.194	12.531	0.000	12.531
Articles:	-	-	-	-	-
FY 2024 Plans:					
Continue Test and Evaluation of NextGen SDR hardware and software. Develop, Test, and Integrate CUAS Software application required for CDU 2.0. Provided limited quantity of CDU 2.0 for purpose of technology demonstration to the fleet DRAKE operators. Begin development of Increment 2 Optimized Antenna, Docking station, and Command and Control(C2) integration.					
FY 2025 Base Plans:					
Continue development of Increment 2 Optimized Antenna, Docking Station, and Command and Control (C2) integration and maintain pace with advancing threats.					
FY 2025 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 2073 / <i>DRAKE 2.0 C-UAS Afloat</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
N/A					
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The increase from FY24 to FY25 of \$2.337M supports continued development of the Increment 2 capability (docking station and optimized antenna) to meet warfighter requirements.					
Accomplishments/Planned Programs Subtotals	5.783	10.194	12.531	0.000	12.531

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

Remarks

D. Acquisition Strategy
Develop, integrate, test, and field hardware and software upgrades, and advanced techniques in DRAKE systems through the Technology Insertion and Technology Refresh process. Technology insertion candidates include the techniques, hardware and software performance improvements developed by United States Government (USG) laboratories, University Affiliated Research Centers (UARCs), and the JCREW prime contractor. Hardware and software updates will be integrated, tested, and implemented in DRAKE via Engineering Change Proposals (ECPs).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 2073 / <i>DRAKE 2.0 C-UAS Afloat</i>
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
System Development	C/FFP	Northrop Grumman : San Diego, CA	0.000	0.562	Jan 2023	1.093	Jan 2024	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/FFP	Northrop Grumman : San Diego, CA	0.000	0.580	Jan 2023	1.035	Jan 2024	0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	C/FFP	Northrop Grumman : San Diego, CA	0.000	0.607	Jan 2023	2.985	Jan 2024	1.900	Jan 2025	-		1.900	Continuing	Continuing	Continuing
System Integration	C/FFP	Northrop Grumman : San Diego, CA	0.000	0.602	Jan 2023	1.398	Jan 2024	0.000		-		0.000	Continuing	Continuing	Continuing
System Development	Various	NSWC : Crane, IN	0.000	0.000		0.000		2.398	Nov 2024	-		2.398	0.000	2.398	-
Systems Engineering	Various	NSWC : Crane, IN	0.000	0.000		0.000		1.700	Nov 2024	-		1.700	0.000	1.700	-
System Integration	Various	NSWC : Crane, IN	0.000	0.000		0.000		1.200	Nov 2024	-		1.200	0.000	1.200	-
Subtotal			0.000	2.351		6.511		7.198		-		7.198	Continuing	Continuing	N/A

Remarks

FY24 to FY25 increased for development, integration and test for INC 2 (optimized antenna and docking station).

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
Loadset Development	Various	NSWC : Various	0.000	0.751	Nov 2022	0.825	Nov 2023	1.418	Nov 2024	-		1.418	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Various	0.000	1.354	Nov 2022	1.453	Nov 2023	1.815	Nov 2024	-		1.815	Continuing	Continuing	Continuing
Subtotal			0.000	2.105		2.278		3.233		-		3.233	Continuing	Continuing	N/A

Remarks

FY24 to FY25 increase due to increased demand for loadset development to rapidly deploy capability to the Fleet.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 2073 / <i>DRAKE 2.0 C-UAS Afloat</i>
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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			
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.000	1.327	Nov 2022	1.405	Nov 2023	2.100	Nov 2024	-		2.100	Continuing	Continuing	Continuing
Subtotal			0.000	1.327		1.405		2.100		-		2.100	Continuing	Continuing	N/A

Remarks
FY24 to FY25 increase due to planned integration and over-the-air testing for INC 1.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.783	10.194	12.531	-	12.531	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 2073 / <i>DRAKE 2.0 C-UAS Afloat</i>
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Proj 2073	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Inc 1 Development and Integration																											
					Inc 1 Test and Evaluation																							
									Inc 2 Development and Integration																			
													Inc 2 Test and Evaluation															
	Advanced Techniques Development																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 2073 / <i>DRAKE 2.0 C-UAS Afloat</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2073				
Inc 1 Development and Integration	1	2023	2	2024
Inc 1 Test and Evaluation	2	2024	2	2025
Inc 2 Development and Integration	3	2024	3	2026
Inc 2 Test and Evaluation	2	2026	4	2027
Advanced Techniques Development	1	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>				Project (Number/Name) 3241 / <i>Counter Unmanned Aircraft Systems (C-UAS)</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
3241: <i>Counter Unmanned Aircraft Systems (C-UAS)</i>	11.010	1.406	1.373	1.654	-	1.654	1.550	1.330	1.352	1.380	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Counter Unmanned Aircraft System (C-UAS) program employs integrated C-UAS solution sets designed to protect high value or critical Naval assets from surveillance, espionage, or hostile threats posed from the inadvertent or unlawful misuse of unmanned aircraft systems (UAS). The C-UAS program provides an integrated Family of Systems (FoS) employing advanced target discrimination and defeat capabilities to meet fleet requirements. More details available at a higher classification level.

FY2025 funding is requested to continue management and implementation of system assessment. Provide program management and systems engineering support for the technology development and acquisition strategy for fielding material solution. Funding provides for refinement of material solutions, threat assessments, identification and development of advanced target discrimination, defeat capabilities, and prototype development for integration into the C-UAS FoS.

Continues refinement of open architecture solution and interoperability standards for a C-UAS FoS. In partnership with the Joint C-UAS Office (JCO) will identify or develop additional detect and deter capabilities to integrate into the C-UAS FoS. As the JCO designated CORIAN Acquisition Lead, will continue development, implementation and integration of additional sensor modalities to improve system detect/ID/track/defeat capabilities. Will continue efforts to improve interoperability between ashore and afloat C-UAS systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: C-UAS System Development and Integration	1.406	1.373	1.654	0.000	1.654
Articles:	-	-	-	-	-
FY 2024 Plans:					
Continue management and implementation of system assessment. Provide program management, and systems engineering support for the technology development and acquisition strategy for fielding material solution. Funding provides for refinement of material solutions, threat assessments, identification and development of advanced target discrimination, defeat capabilities, development for integration into the C-UAS FoS. Continue management and technical support for C-UAS Systems Integration Lab (SIL). In partnership with the Joint C-UAS Office (JCO) will identify or develop additional detect and deter capabilities to integrate into the C-UAS FoS. As the JCO designated CORIAN Acquisition Lead, will continue development, implementation and integration of additional sensor modalities to improve system detect/ID/track/defeat capabilities. Will continue					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 3241 / <i>Counter Unmanned Aircraft Systems (C-UAS)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>efforts to improve interoperability between ashore and afloat C-UAS systems. Funding provides for continued development of data fusion architecture for external sensor integration into a C-UAS common Command and Control (C2).</p> <p>FY 2025 Base Plans: Continue management and implementation of system assessment. Provide program management, and systems engineering support for the technology development and acquisition strategy for fielding material solution. Funding provides for refinement of material solutions, threat assessments, identification and development of advanced target discrimination, defeat capabilities, development for integration into the C-UAS FoS. Continue management and technical support for C-UAS Systems Integration Lab (SIL). In partnership with the Joint C-UAS Office (JCO) will identify or develop additional detect and deter capabilities to integrate into the C-UAS FoS. As the JCO designated CORIAN Acquisition Lead, will continue development, implementation and integration of additional sensor modalities to improve system detect/ID/track/defeat capabilities. Will continue efforts to improve interoperability between ashore and afloat C-UAS systems. Funding provides for continued development of data fusion architecture for external sensor integration into a C-UAS common Command and Control (C2).</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY2024 to FY2025 Increase of \$0.281M supports C-UAS system interoperability enhancements.</p>					
Accomplishments/Planned Programs Subtotals	1.406	1.373	1.654	0.000	1.654

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p> <p>D. Acquisition Strategy The Navy's acquisition strategy capitalizes on prior Rapid Development Capability efforts while leveraging JCO investments with the Program Office acting as Lead Systems Integrator. This acquisition strategy maintains commonality of current C-UAS solutions while continuing to evaluate, improve, and implement layered defense capabilities into the integrated FoS to defeat evolving threats. More details available at a higher classification level.</p>

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy												Date: March 2024			
Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>				Project (Number/Name) 3241 / <i>Counter Unmanned Aircraft Systems (C-UAS)</i>							
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
System Development	Various	Various : Not Specified	1.892	0.000		0.129	Jan 2024	0.630	Jan 2025	-		0.630	Continuing	Continuing	Continuing
Subtotal			1.892	0.000		0.129		0.630		-		0.630	Continuing	Continuing	N/A
Remarks FY2025 increased in Product Development for System Development requirements support external sensor integration with the C-UAS Family of Systems (FoS).															
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
Material solutions and assessments	Various	Various : Not Specified	4.708	0.100	Jan 2023	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			4.708	0.100		0.000		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	Various	Various : Not Specified	1.898	0.473	Oct 2022	0.621	Nov 2023	0.420	Nov 2024	-		0.420	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWC, Patuxent River, MD : Not Specified	2.353	0.772	Oct 2022	0.561	Nov 2023	0.544	Nov 2024	-		0.544	Continuing	Continuing	Continuing
Travel	WR	Various : Not Specified	0.159	0.061	Oct 2022	0.062	Nov 2023	0.060	Nov 2024	-		0.060	Continuing	Continuing	Continuing
Subtotal			4.410	1.306		1.244		1.024		-		1.024	Continuing	Continuing	N/A
Remarks FY2025 decreased in Management Services due to reduction in requirements in Program Management and Government Engineering Support.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 3241 / <i>Counter Unmanned Aircraft Systems (C-UAS)</i>
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Proj 3241.L19																												
System Development																												
	C2 Enhancement																											
Technology Maturation																												
	Follow-on Threat Assessment 2																											
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604636N / <i>Counter Unmanned Aircraft System (C-UAS)</i>	Project (Number/Name) 3241 / <i>Counter Unmanned Aircraft Systems (C-UAS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3241.L19				
System Development: C2 Architecture Capability	1	2023	4	2024
Technology Maturation: Follow-on Threat Assessment 2	1	2023	4	2029