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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy **Date:** March 2023

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 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	91.218	31.204	11.735	0.539	-	0.539	3.491	2.873	2.104	2.146	Continuing	Continuing
3135: <i>USMC MUX</i>	42.218	14.204	1.735	0.539	-	0.539	3.491	2.873	2.104	2.146	Continuing	Continuing
9999: <i>Congressional Adds</i>	49.000	17.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	76.000

A. Mission Description and Budget Item Justification

Project 3135 - The Marine Air Ground Task Force (MAGTF) Unmanned Aircraft System (UAS) Expeditionary (MUX) Family of Systems (FoS) project provides funding to address Tier 1 capability gaps identified in the October 2016 MUX Initial Capabilities Document (ICD) and April 2020 MUX Requirements Clarification document. This PE supports experimentation and prototyping of advanced payloads, system architectures, mission control capabilities, ground control stations, networking and communications infrastructure, and new air vehicles. In addition, MUX FoS will also develop CONOPS to integrate the MUX FoS into joint programs and operating concepts to mitigate technical risk through model-based systems engineering, analysis, simulation, test and evaluation, and partnership with industry.

The MUX FoS provides Advanced Tactical UAS in support of Expeditionary Advanced Base Operations (EABO), Littoral Operations in Contested Environments (LOCE), and Distributed Maritime Operations (DMO) to provide advanced, unmanned, multi-mission capability for the MAGTF and Marine Littoral Regiment (MLR). The first MUX FoS element is MUX Medium-Altitude, Long-Endurance (MUX MALE), a land-based Group 5 UAS scheduled to begin operating in INDOPACOM in FY23. RDT&E efforts for MUX-MALE are funded in PE 0603128N.

B. Program Change Summary (\$ in Millions)

	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	31.204	1.735	2.534	-	2.534
Current President's Budget	31.204	11.735	0.539	-	0.539
Total Adjustments	0.000	10.000	-1.995	-	-1.995
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-2.000	-	-2.000
• Rate/Misc Adjustments	0.000	0.000	0.005	-	0.005

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

Project: 9999: *Congressional Adds*

FY 2022	FY 2023

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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 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2022	FY 2023
Congressional Add: <i>Mobile Unmanned/Manned Distributed Lethality Airborne Network Joint Tech Demo</i>	5.000	0.000
Congressional Add: <i>K-max unmanned logistics system</i>	7.000	0.000
Congressional Add: <i>MQ-9 multi-mode radar pod</i>	5.000	0.000
Congressional Add: <i>Mobile unmanned/manned distributed lethality airborne network joint capability</i>	0.000	10.000
Congressional Add Subtotals for Project: 9999	17.000	10.000
Congressional Add Totals for all Projects	17.000	10.000

Change Summary Explanation

FY 2024 funding request was reduced by \$1.995M for higher department priorities and increased by \$0.005M for rate adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 3135 / <i>USMC MUX</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3135: <i>USMC MUX</i>	42.218	14.204	1.735	0.539	-	0.539	3.491	2.873	2.104	2.146	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3135 - The Marine Air Ground Task Force (MAGTF) Unmanned Aircraft System (UAS) Expeditionary (MUX) Family of Systems (FoS) project provides funding to address capability gaps identified in the October 2016 MUX Initial Capabilities Document (ICD) and associated Requirements Clarification document. This PE supports experimentation and prototyping of advanced payloads, system architectures, mission control capabilities, ground control stations, and networking and communications infrastructure. In addition MUX FoS will also develop CONOPS to integrate the MUX FoS into joint programs and operating concepts to mitigate technical risk through model-based systems engineering, analysis, simulation, test and evaluation, and partnership with industry.

The MUX FoS provides Advanced Tactical UAS in support of Expeditionary Advanced Base Operations (EABO), Littoral Operations in Contested Environments (LOCE), and Distributed Maritime Operations (DMO) to provide advanced, unmanned, multi-mission capability for the MAGTF and Marine Littoral Regiment (MLR). The first MUX FoS element is Medium-Altitude, Long-Endurance (MALE), a land-based Group 5 UAS scheduled to begin operating in INDOPACOM in FY23. RDT&E efforts for MALE are funded in PE 0603128N.

MUX FoS within this Program Element will continue Mission System Payload development and assessment efforts for future system within and external to MALE program. Future Mission System Payloads will support Mission Sensors and other critical technologies that support future planned FoS capability.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MUX Studies, Analysis, and Concept Refinement	10.680	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
Title: Test, Technical, Engineering and Management Services	3.524	1.735	0.539	0.000	0.539
Articles:	-	-	-	-	-
FY 2023 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 3135 / <i>USMC MUX</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Continue to provide Government Systems Engineering and Program Management, Contractor RDT&E support, and travel. Tasking includes conducting Model Based Systems Engineering simulation using industry and threat data, and developing system and payload architecture studies to inform future integration approaches.</p> <p>FY 2024 Base Plans: Continue to provide Government Systems Engineering and Program Management, Contractor RDT&E support, and travel. Tasking includes conducting Model Based Systems Engineering simulation using industry and threat data and developing system and payload architecture studies to inform future integration approaches.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24 funding decrease \$1.196 due to transition of ILS and management services for the procurement Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors.</p>					
Accomplishments/Planned Programs Subtotals	14.204	1.735	0.539	0.000	0.539

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

N/A

Remarks

D. Acquisition Strategy

The MUX acquisition strategy leverages organic government resources, competitive and sole-source contract awards, and assisted acquisition approaches to conduct experimentation and prototyping of advanced payloads, system architectures, mission control capabilities, ground control stations, networking and communications infrastructure, and new air vehicles. Additionally, future MUX Mission System Payloads will leverage other services and government agencies with current technologies in development and will be available at a relatively mature technology.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 3135 / <i>USMC MUX</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
MUX Studies and Experimentation	Various	USAF : Various	11.729	0.000		0.000		0.000		-		0.000	0.000	11.729	-
Requirements Analysis and Engineering Assessments	WR	Various : Various	5.977	0.945	Nov 2021	0.000		0.000		-		0.000	0.000	6.922	-
Mission System Development	Various	Various : Various	3.628	8.135	Jun 2022	0.000		0.000		-		0.000	0.000	11.763	-
Prize Challenge Award	Various	Various : Various	4.000	0.000		0.000		0.000		-		0.000	0.000	4.000	-
Modeling and Simulation	Various	NAWC AD : Patuxent River, MD	1.571	1.600	Nov 2021	0.000		0.000		-		0.000	0.000	3.171	-
Subtotal			26.905	10.680		0.000		0.000		-		0.000	0.000	37.585	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
ILS	Various	Various : Various	0.000	0.000		0.000		0.100	Nov 2023	-		0.100	0.000	0.100	-
Subtotal			0.000	0.000		0.000		0.100		-		0.100	0.000	0.100	N/A

Remarks
 FY24 increase of \$.100 supports ILS for the transition of the procurement of the developed Airborne Network Extension (ANE)/SkyTower II, Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	NAWCAD : Patuxent River, MD	0.220	0.000		0.000		0.000		-		0.000	0.000	0.220	-
Subtotal			0.220	0.000		0.000		0.000		-		0.000	0.000	0.220	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 3135 / <i>USMC MUX</i>
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	7.254	0.905	Nov 2021	0.849	Nov 2022	0.300	Nov 2023	-		0.300	0.000	9.308	-
Program Management Support	Various	Various : Various	7.506	2.569	Nov 2021	0.842	Nov 2022	0.124	Nov 2023	-		0.124	Continuing	Continuing	Continuing
Travel	WR	NAWCAD : Patuxent River, MD	0.333	0.050	Nov 2021	0.044	Nov 2022	0.015	Nov 2023	-		0.015	0.000	0.442	-
Subtotal			15.093	3.524		1.735		0.439		-		0.439	Continuing	Continuing	N/A

Remarks
FY24 decrease of \$1.296 transitions management services for the procurement of the developed Airborne Network Extension (ANE)/SkyTower II, Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.218	14.204	1.735	0.539	-	0.539	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 3135 / <i>USMC MUX</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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

Proj 3135	
System Development: Mission System Payload Development	[REDACTED]
System Development: Technical Review and Analysis: Model Based Systems Engineering (MBSE)	[REDACTED]
System Development: Technical Review and Analysis: CONOPS Refinement	[REDACTED]
System Development: Technical Review and Analysis: Modeling and Simulation	[REDACTED]
Test & Evaluation: Technical Evaluation: Technical Evaluation (TE)	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 3135 / <i>USMC MUX</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3135				
System Development: Mission System Payload Development	1	2022	4	2028
System Development: Technical Review and Analysis: Model Based Systems Engineering (MBSE)	1	2022	4	2022
System Development: Technical Review and Analysis: CONOPS Refinement	1	2022	4	2022
System Development: Technical Review and Analysis: Modeling and Simulation	1	2022	4	2022
Test & Evaluation: Technical Evaluation: Technical Evaluation (TE)	1	2022	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>				Project (Number/Name) 9999 / <i>Congressional Adds</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	49.000	17.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	76.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project C629 - The Mobile Unmanned/Manned Distributed Lethality Airborne Network (MUDLAN) project provides development of high speed, high throughput, interoperable data link supporting Command and Control (C2), Intelligence, Surveillance, Reconnaissance (ISR) and Tactical Data in a SATCOM denied or restricted environment.

MUDLAN provides prototype development, testing, fleet experimentation, and concept refinement for next generation high speed, high throughput data link supporting C2, ISR and Tactical Data to connect and distribute multi-users across multiple domains in a common network architecture which enhances tactical edge situational awareness with a single user interface.

The modern protected communications capabilities allow manned and unmanned aircraft to share and disseminate large amounts of data using improved emergent communications technologies for multi-platform/ multi-service interoperability through Line-of-Sight (LOS) tactical data networks. These high-speed tactical data links are required at the forward edge where satellite services are not optimal and where existing airborne tactical data links do not support required speeds.

MUDLAN built a prototype joint tactical grid connecting over the horizon across 5 IP based links, including a high-capacity transport of 45 MBPS at 130 nautical miles in a single hop, total end to end connection of 220 nautical miles demonstrated at Pax River in March 2021. MUDLAN Joint Capability Technology Demonstration concludes this summer with two defined transitions of components into programs of record. The services are continuing to invest in specific upgrades to other components to meet evolving requirements.

Project C764 - Unmanned Logistics Support - Air (ULS-A)/KMAX provides for experimentation for unmanned cargo operations and includes complementary ISR, payloads, advanced sensors, autonomy; efforts refined requirements and Concept of Operations (CONOPS). This includes continued development of autonomous obstacle avoidance and landing system, and the continued development and integration of unique satellite communication systems designed for over-the-horizon use and operation in line-of-sight constrained environments.

Project C766 - MQ-9 Multi-Mode Radar Pod is a high-performance system that provides high-resolution, photographic-quality imagery that can be captured through clouds, rain, dust, smoke and fog. Designed to meet the onboard challenges of the Remotely Piloted Aircraft (RPA) systems environment, the radar consumes minimal Size, Weight and Power (SWAP) while delivering precision air to surface targeting accuracy and superb wide area search capabilities for both ground and maritime missions.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy	Date: March 2023
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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Project C882 - The Mobile Unmanned/Manned Distributed Lethality Airborne Network (MUDLAN) project provides development of high speed, high throughput, interoperable data link supporting Command and Control (C2), Intelligence, Surveillance, Reconnaissance (ISR) and Tactical Data in a SATCOM denied or restricted environment.

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

	FY 2022	FY 2023
Congressional Add: Mobile Unmanned/Manned Distributed Lethality Airborne Network Joint Tech Demo <i>FY 2022 Accomplishments:</i> FY22 MUDLAN CONAD funded completion of Phase 0 and Phase 1 of the MANGL Advanced Technology Insertion (MATI) program. Phase 0 focused on procurement of long lead-time hardware as well as initial design work with subcontractors. Phase 1 includes ground testing and surrogate airborne testing of the MATI system to integrate digital beam-forming and waveform network management as an advanced solution to the Airborne Network Extension (ANE) mission. <i>FY 2023 Plans:</i> N/A	5.000	0.000
Congressional Add: K-max unmanned logistics system <i>FY 2022 Accomplishments:</i> N/A <i>FY 2023 Plans:</i> N/A	7.000	0.000
Congressional Add: MQ-9 multi-mode radar pod <i>FY 2022 Accomplishments:</i> N/A <i>FY 2023 Plans:</i> N/A	5.000	0.000
Congressional Add: Mobile unmanned/manned distributed lethality airborne network joint capability <i>FY 2022 Accomplishments:</i> N/A <i>FY 2023 Plans:</i> FY23 Plans: FY23 MUDLAN CONAD funds continue NRE, surrogate and UAS testing of MATI systems, and development of fully developed Engineering Change Proposals (ECPs) for incorporation into other Government Programs and Projects. Phase 2 will ensure MIL-STD adherence of the MATI components, incorporation of encryption topology and systems for the MATI System and obtain certification from NSA for the encryption topology/ systems.	0.000	10.000
Congressional Adds Subtotals	17.000	10.000

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

The MUDLAN/MATI (MANGL advanced technology insertion) experimentation will leverage MUDLAN Joint Capability Technology Demonstration and MUDLAN Small Business Innovation Research prior efforts. The use of Small Business contractors, the effort will focus on continued innovation of antenna, radio and networking capabilities. Experimentation and maturation will continue to inform end user operational requirements and build on USMC, Joint service, OSD(R&E) successes. Transition will occur through future acquisition plans once the hardware is mature and the Joint service requirements are validated to enable follow-on fleet integration.

The ULS-A demonstration will be combined with the current unmanned logistics capability and will support planned demonstrations associated with CQ-24A (KMAX) as part of a Cooperative Research and Development Agreement (CRADA) between the Navy and industry partners.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 4				PE 0304240M / Advanced Tactical Unmanned Aircraft System				9999 / Congressional Adds							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
CONOPS, Interface Control Documents	WR	NAWCAD : Patuxent River, MD	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
MUDLAN Pod development and flight demonstration	C/CPIF	Various : Various	6.400	1.500	Aug 2022	0.000		0.000		-		0.000	0.000	7.900	-
MUDLAN communications equipment and demonstrations	C/CPIF	Various : Various	8.150	0.000		0.000		0.000		-		0.000	0.000	8.150	-
ULS-A Experimentation	Various	USAF : Rome, NY	20.444	0.000		0.000		0.000		-		0.000	0.000	20.444	-
ULS-A Requirements and analysis, and engineering assessments	WR	NAWCAD : Patuxent River, MD	1.342	0.000		0.000		0.000		-		0.000	0.000	1.342	-
FINN Dev	Various	USAF : WPAFB	2.500	0.000		0.000		0.000		-		0.000	0.000	2.500	-
K-MAX Unmanned Logistics System	Various	USAF : Rome, NY	0.000	7.000	Jun 2022	0.000		0.000		-		0.000	0.000	7.000	-
MQ-9 Multi-mode radar pod	Various	AFRL : Dayton, Ohio	0.000	5.000	Jul 2022	0.000		0.000		-		0.000	0.000	5.000	-
MUDLAN unmanned/manned distributed lethality airborne network joint capability	C/CPIF	AFRL : Rome, NY	0.000	0.000		9.600	Aug 2023	0.000		-		0.000	0.000	9.600	-
Subtotal			39.336	13.500		9.600		0.000		-		0.000	0.000	62.436	N/A
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Logistics Support	Various	Various : Various	2.333	0.000		0.000		0.000		-		0.000	0.000	2.333	-
Subtotal			2.333	0.000		0.000		0.000		-		0.000	0.000	2.333	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy **Date:** March 2023

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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
MUDLAN/ MATI	Requirements / CONOPS																											
	Pod development																											
	Tech Maturation and prototyping																											
	Flight Technical Demonstrations																											
					Pod development																							
ULS-A					ULS-A Experimentation																							
					ULS-A assessments																							
K-max									K-MAX Experimentation																			
MQ-9									MQ-9 Rader Pod																			
MUDLAN/ MATI unmanned/manned distributed lethality airborne network joint capability									Pod development																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
MUDLAN/ MATI: Requirements / CONOPS	1	2022	4	2022
MUDLAN/ MATI: MUDLAN Pod development	1	2022	4	2022
MUDLAN/ MATI: Maturation and prototyping of key MUDLAN communications equipment and demonstrations (MATI)	1	2022	4	2022
MUDLAN/ MATI: MUDLAN Flight Technical Demonstrations	1	2022	4	2022
MUDLAN/ MATI: MUDLAN Pod development and flight demonstration	3	2022	4	2023
ULS-A: ULS-A Product Development	1	2022	4	2022
ULS-A: ULS-A Requirements and Engineering Assessments	1	2022	4	2022
K-max: K-MAX Unmanned Logistics System	3	2022	4	2023
MQ-9: MQ-9 Multi-mode radar pod	3	2022	4	2023
MUDLAN/ MATI unmanned/manned distributed lethality airborne network joint capability: MUDLAN Pod development and flight demonstration	2	2023	4	2023