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

<b>Appropriation/Budget Activity</b>					<b>R-1 Program Element (Number/Name)</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	63.093	28.125	31.204	1.735	-	1.735	2.534	2.281	2.063	2.093	Continuing	Continuing
3135: <i>USMC MUX</i>	30.593	11.625	14.204	1.735	-	1.735	2.534	2.281	2.063	2.093	Continuing	Continuing
9999: <i>Congressional Adds</i>	32.500	16.500	17.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	66.000

**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. The first MUX FoS element is MUX Medium-Altitude, Long-Endurance (MUX MALE), a land-based Group 5 UAS scheduled to begin operating in PACOM in FY23. RDT&E efforts for MUX-MALE are funded in PE 0603128N.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	28.125	16.204	0.000	-	0.000
Current President's Budget	28.125	31.204	1.735	-	1.735
Total Adjustments	0.000	15.000	1.735	-	1.735
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-2.000	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	17.000	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	1.735	-	1.735

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

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>
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**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *Fused integrated Naval Network*

Congressional Add: *KMAX Experimentation and Support*

Congressional Add: *Mobile Unmanned/Manned Distributed Lethality Airborne Network Joint Tech Demo*

Congressional Add: *K-max unmanned logistics system*

Congressional Add: *MQ-9 multi-mode radar pod*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2021	FY 2022
	2.500	0.000
	7.000	0.000
	7.000	5.000
	0.000	7.000
	0.000	5.000
Congressional Add Subtotals for Project: 9999	16.500	17.000
Congressional Add Totals for all Projects	16.500	17.000

**Change Summary Explanation**

Congressional Add Details:

Project 9999 - FY21 Congressional adds support funding for Mobile Unmanned/Manned Distributed Lethality Airborne Network (MUDLAN) development, KMAX experimentation and support, and Fused Integrated Naval Network (FINN) development. FY 22 Congressional adds support funding for Mobile Unmanned/Manned Distributed Lethality Airborne Network Joint Tech Demo, K-max unmanned logistics system, and MQ-9 multi-mode radar pod.

Baseline Details:

FY 2023 funding request was reduced by \$0.539 million to account for the availability of prior year execution balances.

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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 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 3135 / <i>USMC MUX</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
3135: <i>USMC MUX</i>	30.593	11.625	14.204	1.735	-	1.735	2.534	2.281	2.063	2.093	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. The first MUX FoS element is Medium-Altitude, Long-Endurance (MALE), a land-based Group 5 UAS scheduled to begin operating in PACOM 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> MUX Studies, Analysis, and Concept Refinement	6.182	10.680	0.000	0.000	0.000
<b>Articles:</b>	-	-	-	-	-
<b>FY 2022 Plans:</b> Planned efforts include conducting architecture studies, model based systems engineering and simulation, engineering and sustainment analysis, design refinement activities, and prototyping to inform future integration approaches and decisions for MUX Airborne Communications and Data Networking Relay, Airborne Early Warning (AEW), Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors in development.					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 3135 / <i>USMC MUX</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> No funding assigned in FY23 in order to support transition of the developed Airborne Communications and Data Networking Relay, Airborne Early Warning (AEW), Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors onto the MALE system via PE 0603128N in FY23.					
<b><i>Title:</i></b> Test, Technical, Engineering and Management Services	5.443	3.524	1.735	0.000	1.735
<b><i>Articles:</i></b>	-	-	-	-	-
<b><i>FY 2022 Plans:</i></b> Will 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.					
<b><i>FY 2023 Base Plans:</i></b> 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.					
<b><i>FY 2023 OCO Plans:</i></b> N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> FY23 request decreased by \$1.789 to support the transition of FY22 PE 0304240M developed Airborne Communications and Data Networking Relay, Airborne Early Warning (AEW), Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors onto the MALE system via PE 0603128N in FY23.					
<b>Accomplishments/Planned Programs Subtotals</b>	11.625	14.204	1.735	0.000	1.735

<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A
<b>Remarks</b>
<b>D. Acquisition Strategy</b> 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

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
1319 / 4	PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	3135 / <i>USMC MUX</i>

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 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 3135 / <i>USMC MUX</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</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>			
MUX Studies and Experimentation	Various	USAF : Various	11.279	0.450	Nov 2020	0.000		0.000		-		0.000	0.000	11.729	-
Requirements Analysis and Engineering Assessments	WR	Various : Various	5.133	0.844	Nov 2020	0.945	Nov 2021	0.000		-		0.000	0.000	6.922	-
Mission System Development	Various	Various : Various	0.000	3.628	Nov 2021	8.135	Feb 2022	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	0.311	1.260	Nov 2020	1.600	Nov 2021	0.000		-		0.000	0.000	3.171	-
<b>Subtotal</b>			20.723	6.182		10.680		0.000		-		0.000	0.000	37.585	N/A

**Remarks**  
No funding assigned in FY23 in order to support transition of the developed Airborne Communications and Data Networking Relay, Airborne Early Warning (AEW), Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors onto the MALE system via PE 0603128N in FY23.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</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>			
Test & Evaluation	Various	NAWCAD : Patuxent River, MD	0.220	0.000		0.000		0.000		-		0.000	0.000	0.220	-
<b>Subtotal</b>			0.220	0.000		0.000		0.000		-		0.000	0.000	0.220	N/A

**Remarks**  
N/A

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 3135 / <i>USMC MUX</i>
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<b>Management Services (\$ in Millions)</b>				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			
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	4.405	2.849	Nov 2020	0.905	Nov 2021	0.849	Nov 2022	-		0.849	0.000	9.008	-
Program Management Support	Various	Various : Various	4.987	2.519	Nov 2020	2.569	Nov 2021	0.842	Nov 2022	-		0.842	Continuing	Continuing	Continuing
Travel	WR	NAWCAD : Patuxent River, MD	0.258	0.075	Nov 2020	0.050	Nov 2021	0.044	Nov 2022	-		0.044	0.000	0.427	-
<b>Subtotal</b>			9.650	5.443		3.524		1.735		-		1.735	Continuing	Continuing	N/A

**Remarks**  
 FY23 funding decreased \$1.789 to support the transition of FY22 PE 0304240M developed Airborne Communications and Data Networking Relay, Airborne Early Warning (AEW), Maritime Domain Awareness (MDA), and Electronic Warfare (EW) sensors onto the MALE system via PE 0603128N in FY23.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	30.593	11.625	14.204	1.735	-	1.735	Continuing	Continuing	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 3135 / <i>USMC MUX</i>
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Proj 3135	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				
	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	
<b>Middle Tier Acquisition Milestones</b>																													
<b>System Development</b>																													
	Mission System Payload																												
Software																													
Technical Review and Analysis	Model Based Systems Engineering (MBSE)																												
					CONOPS Refinement																								
					Modeling and Simulation																								
<b>Test &amp; Evaluation</b>																													
Technical Evaluation					TE																								
<b>Program Milestones</b>																													
Prize Challenges																													

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 3135 / <i>USMC MUX</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3135</b>				
System Development: Mission System Payload Development	1	2021	4	2027
System Development: Technical Review and Analysis: Model Based Systems Engineering (MBSE)	1	2021	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 2023 Navy **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</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
9999: <i>Congressional Adds</i>	32.500	16.500	17.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	66.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Project C553/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 C614 - Fused Integrated Naval Network (FINN)/SkyTower II Prototype (ST2P) capability development maintains commonality with MUDLAN technologies and focuses on Naval (Navy/USMC) tactical data link interoperability, this funding will support common integration and test objectives. FINN/ST2P also supports the Navy's Distributed Maritime Operations (DMO) objectives and the Marine Corps Expeditionary Advanced Based Operations (EABO) concept as a key enabler for data dissemination which is being assessed in FY21 and will continue in FY22 through a series of operational exercises.

Project C554/C623/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

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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.

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

	FY 2021	FY 2022
<b>Congressional Add:</b> Fused integrated Naval Network <b>FY 2021 Accomplishments:</b> Conducted integration and testing events to networking capabilities of FINN. <b>FY 2022 Plans:</b> N/A	2.500	0.000
<b>Congressional Add:</b> KMAX Experimentation and Support <b>FY 2021 Accomplishments:</b> Completed component level testing for autonomous capability, W band radar collision avoidance, through the rotors SATCOM. <b>FY 2022 Plans:</b> N/A	7.000	0.000
<b>Congressional Add:</b> Mobile Unmanned/Manned Distributed Lethality Airborne Network Joint Tech Demo <b>FY 2021 Accomplishments:</b> Awarded contract the JCTD and completed. Supported Demonstration for Indo-Pacom at Long Range fire scenario at Northern Edge-21. Invested in key tech development for TENTACLE, which will create a joint tactical edge network architecture. <b>FY 2022 Plans:</b> Support Congressional Add efforts.	7.000	5.000
<b>Congressional Add:</b> K-max unmanned logistics system <b>FY 2021 Accomplishments:</b> N/A <b>FY 2022 Plans:</b> Support Congressional Add efforts.	0.000	7.000
<b>Congressional Add:</b> MQ-9 multi-mode radar pod <b>FY 2021 Accomplishments:</b> N/A <b>FY 2022 Plans:</b> Support Congressional Add efforts.	0.000	5.000
<b>Congressional Adds Subtotals</b>	16.500	17.000

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

N/A

**Remarks**

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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**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 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</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>			
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	5.200	1.200	Jul 2021	1.500	Aug 2022	0.000		-		0.000	0.000	7.900	-
MUDLAN communications equipment and demonstrations	C/CPIF	Various : Various	4.900	3.250	Jul 2021	0.000		0.000		-		0.000	0.000	8.150	-
ULS-A Experimentation	Various	USAF : Rome, NY	14.932	5.512	Jul 2021	0.000		0.000		-		0.000	0.000	20.444	-
ULS-A Requirements and analysis, and engineering assessments	WR	NAWCAD : Patuxent River, MD	0.750	0.592	Jul 2021	0.000		0.000		-		0.000	0.000	1.342	-
FINN Dev	Various	USAF : WPAFB	0.000	2.500	May 2021	0.000		0.000		-		0.000	0.000	2.500	-
K-MAX Unmanned Logistics System	Various	USAF : Rome, NY	0.000	0.000		7.000	May 2022	0.000		-		0.000	0.000	7.000	-
MQ-9 Multi-mode radar pod	Various	AFRL : Dayton, Ohio	0.000	0.000		5.000	May 2022	0.000		-		0.000	0.000	5.000	-
<b>Subtotal</b>			26.282	13.054		13.500		0.000		-		0.000	0.000	52.836	N/A

**Remarks**  
FY 22 Congressional adds support funding for Mobile Unmanned/Manned Distributed Lethality Airborne Network Joint Tech Demo, K-max unmanned logistics system, and MQ-9 multi-mode radar pod.

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</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>			
Logistics Support	Various	Various : Various	1.200	1.133	Jun 2021	0.000		0.000		-		0.000	0.000	2.333	-
<b>Subtotal</b>			1.200	1.133		0.000		0.000		-		0.000	0.000	2.333	N/A

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>
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<b>Test and Evaluation (\$ in Millions)</b>				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			
Range Demo Costs	Various	Various : Patuxent River, MD	2.100	0.000		0.000		0.000		-		0.000	0.000	2.100	-
SAIL Cost	Various	Various : Patuxent River, MD	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
<b>Subtotal</b>			2.600	0.000		0.000		0.000		-		0.000	0.000	2.600	N/A

<b>Management Services (\$ in Millions)</b>				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			
Program Management Support	Various	Various : Various	0.800	0.816	May 2021	0.850	May 2022	0.000		-		0.000	0.000	2.466	-
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	1.468	1.497	May 2021	2.500	May 2022	0.000		-		0.000	0.000	5.465	-
Travel	WR	NAWCAD : Patuxent River, MD	0.150	0.000	May 2021	0.150	May 2022	0.000		-		0.000	0.000	0.300	-
<b>Subtotal</b>			2.418	2.313		3.500		0.000		-		0.000	0.000	8.231	N/A

**Remarks**  
FY22 Increase in costs to Program Management Support, Government Engineering Support, and Travel due to MUDLAN requirements.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	32.500	16.500	17.000	0.000	-	0.000	0.000	66.000	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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 9999																												
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																							

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Navy		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0304240M / <i>Advanced Tactical Unmanned Aircraft System</i>	<b>Project (Number/Name)</b> 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 9999</b>				
MUDLAN/ MATI: Requirements / CONOPS	1	2021	4	2022
MUDLAN/ MATI: MUDLAN Pod development	1	2021	4	2021
MUDLAN/ MATI: Maturation and prototyping of key MUDLAN communications equipment and demonstrations (MATI)	1	2021	4	2022
MUDLAN/ MATI: MUDLAN Flight Technical Demonstrations	1	2021	4	2022
MUDLAN/ MATI: MUDLAN Pod development and flight demonstration	3	2022	4	2023
ULS-A: ULS-A Product Development	1	2021	4	2022
ULS-A: ULS-A Requirements and Engineering Assessments	1	2021	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