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

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603261N / <i>Tactical Airborne Reconnaissance</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	79.908	3.537	3.419	3.411	-	3.411	3.481	3.760	3.696	3.769	Continuing	Continuing
2467: <i>UxS Common Standards, Interoperability and Integration</i>	79.908	3.537	3.419	3.411	-	3.411	3.481	3.760	3.696	3.769	Continuing	Continuing

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

This program element funds efforts to develop common technical and interoperability standards for current and future unmanned platforms, sensors, communications, and networking capabilities to achieve the required integration and interoperability of Unmanned Systems (UxS) represented in approved Naval Concept of Operations (CONOPS).

This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	3.540	3.419	3.430	-	3.430
Current President's Budget	3.537	3.419	3.411	-	3.411
Total Adjustments	-0.003	0.000	-0.019	-	-0.019
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.003	0.000			
• Program Adjustments	0.000	0.000	-0.052	-	-0.052
• Rate/Misc Adjustments	0.000	0.000	0.033	-	0.033

**Change Summary Explanation**

Technical: Not applicable to baseline.  
Schedule: Not applicable.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 1319 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603261N / <i>Tactical Airborne Reconnaissance</i>				<b>Project (Number/Name)</b> 2467 / <i>UxS Common Standards, Interoperability and Integration</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2467: <i>UxS Common Standards, Interoperability and Integration</i>	79.908	3.537	3.419	3.411	-	3.411	3.481	3.760	3.696	3.769	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

The Naval Unmanned Aircraft Systems (UAS) strategy employs a family of UAS to perform various missions in support of naval and joint service missions from forward bases/platforms and naval ships.

In support of the Navy and Marine Corps' overall UAS strategy, this program develops common technical and interoperability standards for current and future unmanned platforms, sensors, communications, and networking capabilities to achieve the integration and interoperability of UAS represented in approved Naval Concept of Operations (CONOPS). Leveraging fleet input based on current operations and informed by future operational plans, these efforts ensure the desired interoperability and integration of Unmanned Systems (UxS) throughout the battlespace is achieved. This program also establishes the common architecture, including command & control, for all unmanned systems to support and inform future CONOPS development. This effort provides for a cross program view of naval unmanned systems and is the entry point for DoN and other services to address commonality and interoperability opportunities.

Specifically:

- Provides studies and demonstrations in support of Naval UAS Family of Systems (FoS) CONOPS development.
- Horizontally integrates across the Naval UAS FoS through the development of Naval Interoperability Profiles to achieve required unmanned capabilities and interoperability.
- Provides support for development of common and interoperable UAS standards for use throughout the Department of Defense (DoD) and the North Atlantic Treaty Organization (NATO).
- Conducts CONOPS studies, demonstrations, advanced development/prototyping, exercises for vehicle control, targeting, and weapons, sensor and payload employment.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> Studies and Demonstrations	1.917	1.960	1.923	0.000	1.923
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> Studies and demonstrations to support CONOPS development from an interoperability perspective for effective integration of UAS. Develop a UAS architecture environment to allow for effective modeling and simulation of common UAS components in representative battlespace architectures.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy			<b>Date:</b> February 2020			
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603261N / <i>Tactical Airborne Reconnaissance</i>	<b>Project (Number/Name)</b> 2467 / <i>UxS Common Standards, Interoperability and Integration</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<p><b>FY 2020 Plans:</b> Continue development of the UAS modeling and simulation of Fleet CONOPS scenarios. Demonstrate Manned/Unmanned Interoperability. Provide technical government engineering support.</p> <p><b>FY 2021 Base Plans:</b> Continue development of the UAS modeling and simulation of Fleet CONOPS scenarios. Demonstrate Manned/Unmanned Interoperability. Provide technical government engineering support.</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The decrease of \$0.037M is due to rate adjustments.</p>						
<b>Title:</b> Naval Interoperability & Standardization		1.620	1.459	1.488	0.000	1.488
		<b>Articles:</b> -	-	-	-	-
<p><b>Description:</b> Develop UAS common technical standards implementations to achieve desired capabilities and interoperability between manned/unmanned systems.</p> <p><b>FY 2020 Plans:</b> Continue to develop Unmanned Systems Naval Interoperability Profiles in support of approved Naval CONOPS. Support DoN, Joint Service and NATO coalition interoperability efforts. Provide government engineering support and contract services.</p> <p><b>FY 2021 Base Plans:</b> Continue to develop Unmanned Systems Naval Interoperability Profiles in support of approved Naval CONOPS. Support DoN, Joint Service and NATO coalition interoperability efforts. Provide government engineering support and contract services.</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The increase of \$0.029M is due to rate adjustments.</p>						
<b>Accomplishments/Planned Programs Subtotals</b>		3.537	3.419	3.411	0.000	3.411

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603261N / <i>Tactical Airborne Reconnaissance</i>	<b>Project (Number/Name)</b> 2467 / <i>UxS Common Standards, Interoperability and Integration</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> The department will leverage existing government facilities and resources to develop common technical and interoperability standards for current and future unmanned sensors, communications, and networking capabilities to achieve the required interoperability and integration of unmanned systems represented in approved Naval Concept of Operations (CONOPS). Government engineering support will be used for standards development, architectural analysis, modeling and simulation efforts and testing.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 4				PE 0603261N / <i>Tactical Airborne Reconnaissance</i>				2467 / <i>UxS Common Standards, Interoperability and Integration</i>								
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	18.711	0.000		0.000		0.000		-		0.000	0.000	18.711	-	
<b>Subtotal</b>			18.711	0.000		0.000		0.000		-		0.000	0.000	18.711	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Studies & Demonstrations	WR	NAWCAD : Pax River, MD	5.153	0.245	Dec 2018	0.250	Dec 2019	0.217	Dec 2020	-		0.217	Continuing	Continuing	Continuing	
Standards Development	C/CPFF	Engility : Lexington Park, MD	4.212	1.400	Jan 2019	1.334	Jan 2020	1.360	Jan 2021	-		1.360	Continuing	Continuing	Continuing	
Prior year Support no longer funded in the FYDP	Various	Various : Various	29.815	0.000		0.000		0.000		-		0.000	0.000	29.815	-	
<b>Subtotal</b>			39.180	1.645		1.584		1.577		-		1.577	Continuing	Continuing	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Prior year Test & Eval no longer funded in the FYDP	Various	Various : Various	2.627	0.000		0.000		0.000		-		0.000	0.000	2.627	-	
<b>Subtotal</b>			2.627	0.000		0.000		0.000		-		0.000	0.000	2.627	N/A	
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support	Various	Various : Various	5.251	0.218	Jan 2019	0.125	Jan 2020	0.128	Jan 2021	-		0.128	Continuing	Continuing	Continuing	



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603261N / <i>Tactical Airborne Reconnaissance</i>	<b>Project (Number/Name)</b> 2467 / <i>UxS Common Standards, Interoperability and Integration</i>
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<b>UxS Common Standards, Interoperability and Integration</b>	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Unmanned Aircraft System (UAS) Targeting																												
Weapons and Payload Employment																												
Task and Manning Assessment																												
Studies and Demonstrations																												
Naval Interoperability and Standardization																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603261N / <i>Tactical Airborne Reconnaissance</i>	<b>Project (Number/Name)</b> 2467 / <i>UxS Common Standards, Interoperability and Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>UxS Common Standards, Interoperability and Integration</i></b>				
Studies and Demonstrations:	1	2019	4	2025
Naval Interoperability and Standardization:	1	2019	4	2025