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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy **Date:** March 2019

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603261N / Tactical Airborne Reconnaissance							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	76.216	3.692	3.540	3.419	-	3.419	3.430	3.520	3.589	3.662	Continuing	Continuing
2467: UxS Common Standards, Interoperability and Integration	76.216	3.692	3.540	3.419	-	3.419	3.430	3.520	3.589	3.662	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. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	3.707	3.540	3.522	-	3.522
Current President's Budget	3.692	3.540	3.419	-	3.419
Total Adjustments	-0.015	0.000	-0.103	-	-0.103
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.015	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.103	-	-0.103

Change Summary Explanation

Technical: Not applicable to baseline.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603261N / <i>Tactical Airborne Reconnaissance</i>				Project (Number/Name) 2467 / <i>UxS Common Standards, Interoperability and Integration</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2467: <i>UxS Common Standards, Interoperability and Integration</i>	76.216	3.692	3.540	3.419	-	3.419	3.430	3.520	3.589	3.662	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 persistent Intelligence, Surveillance, and Reconnaissance (ISR) 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 systems 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, and exercises for vehicle control, targeting, and weapons, sensor and payload employment.

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

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Studies and Demonstrations	1.589	1.920	1.960	0.000	1.960
Articles:	-	-	-	-	-
Description: 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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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603261N / Tactical Airborne Reconnaissance	Project (Number/Name) 2467 / UxS Common Standards, Interoperability and Integration				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: Continue development of the Unmanned Aircraft Systems (UAS) modeling and simulation of Fleet CONOPS scenarios. Demonstrate Manned/Unmanned Interoperability. Provide technical government engineering support.						
FY 2020 Base Plans: Continue development of the Unmanned Aircraft Systems (UAS) modeling and simulation of Fleet CONOPS scenarios. Demonstrate Manned/Unmanned Interoperability. Provide technical government engineering support.						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: There are no significant changes						
Title: Naval Interoperability & Standardization		2.103	1.620	1.459	0.000	1.459
Articles:		-	-	-	-	-
Description: Develop UAS common technical standards implementations to achieve desired capabilities and interoperability between manned/unmanned systems.						
FY 2019 Plans: 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, program office travel, and contract services.						
FY 2020 Base Plans: 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.						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: There are no significant changes						
Accomplishments/Planned Programs Subtotals		3.692	3.540	3.419	0.000	3.419

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<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>Remarks</u>		
<u>D. Acquisition Strategy</u> 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.		
<u>E. Performance Metrics</u> UAS capabilities delivered to the warfighter are continually improved upon through efforts that increase the level of commonality, standardization, and interoperability between nodes depicted in existing and planned Naval CONOPS.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603261N / <i>Tactical Airborne Reconnaissance</i>				Project (Number/Name) 2467 / <i>UxS Common Standards, Interoperability and Integration</i>					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	-
Subtotal			18.711	0.000		0.000		0.000		-		0.000	0.000	18.711	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	4.912	0.241	Dec 2017	0.245	Dec 2018	0.250	Dec 2019	-		0.250	Continuing	Continuing	Continuing
Standards Development	C/CPFF	Engility : Lexington Park, MD	2.780	1.432	Jan 2018	1.400	Jan 2019	1.334	Jan 2020	-		1.334	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	-
Subtotal			37.507	1.673		1.645		1.584		-		1.584	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	-
Subtotal			2.627	0.000		0.000		0.000		-		0.000	0.000	2.627	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	4.580	0.671	Jan 2018	0.218	Jan 2019	0.125	Jan 2020	-		0.125	Continuing	Continuing	Continuing

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Government Engineering Support	WR	NAWCAD : Pax River, MD	11.183	1.348	Dec 2017	1.675	Dec 2018	1.710	Dec 2019	-		1.710	Continuing	Continuing	Continuing
Travel	WR	NAVAIR HQ : Pax River, MD	0.558	0.000		0.002	Oct 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Prior year Mgmt Services no longer funded in the FYDP	Various	Various : Various	1.050	0.000		0.000		0.000		-		0.000	0.000	1.050	-
Subtotal			17.371	2.019		1.895		1.835		-		1.835	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			76.216	3.692		3.540		3.419		-		3.419	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy																							Date: March 2019					
Appropriation/Budget Activity 1319 / 4												R-1 Program Element (Number/Name) PE 0603261N / Tactical Airborne Reconnaissance								Project (Number/Name) 2467 / UxS Common Standards, Interoperability and Integration								
UxS Common Standards, Interoperability and Integration	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603261N / <i>Tactical Airborne Reconnaissance</i>	Project (Number/Name) 2467 / <i>UxS Common Standards, Interoperability and Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>UxS Common Standards, Interoperability and Integration</i>				
Studies and Demonstrations:	1	2018	4	2024
Naval Interoperability and Standardization:	1	2018	4	2024