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

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV
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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	5.444	0.524	0.509	0.537	-	0.537	0.540	0.562	0.573	0.584	Continuing	Continuing
2292: <i>Unmanned Air Systems (Intel)</i>	5.444	0.524	0.509	0.537	-	0.537	0.540	0.562	0.573	0.584	Continuing	Continuing

A. Mission Description and Budget Item Justification

Family of Small Unmanned Aircraft Systems (FoSUAS) [formerly Small Unit Remote Scouting System (SURSS)] - The FoSUAS program procures unmanned aircraft systems (UAS) to provide battalion/company/detachment level units with scalable airborne surveillance and reconnaissance capabilities to aid in detecting, identifying, engaging, and/or avoiding enemy units. Currently procured RQ-12 Wasp, RQ-11 Raven, RQ-20 Puma and various Nano/Vertical Takeoff & Landing (VTOL) UASs meet validated operational requirements delineated in the Operational Requirements Document (ORD). Puma and the VTOL UAS continue to be planned as solution sets for Group 1 and Group 2 capability needs while both Navy and Marine Corps finalize the transition of revised requirements to address Intelligence, Surveillance, and Reconnaissance (ISR) Capability requirements via a new Capability Development Document (CDD), the intended successor to the current ORD.

The new CDD shall incorporate unique mission kits, mission payloads, air vehicle enhancements, and modifications of UAS and related ground control stations for the family of Group 1 and Group 2 tactical UAS. These capability sets include Group 1 Short Range/Short Endurance (SR/SE), Group 1 Medium Range/Medium Endurance (MR/ME), and Group 1/Group 2 Long Range/Long Endurance (LR/LE). Group 1 UAS are small systems, less than 20 pounds in weight and Group 2 are systems, between 21 pounds and 55 pounds in weight. In addition to the ORD/CDD requirements, the FoSUAS (formerly SURSS) program also conducts Field User Evaluations (FUEs) to support Universal Urgent Needs Statements (UUNS) that inform future USMC systems procurements. Movement towards SUAS Common Control Architecture (SCCA) capability [formerly considered as Single Operator Man-Portable Ground Control System (GCS) / Target Handoff System (SOMGCS/THS)] aligning to Army TOGA efforts, reduces the size, weight, and manpower required to operate a FoSUAS GCS, increases the mobility of the operator, and improves digital interoperability. An SCCA capability shall be fully mobile and can be attached to the operator while the fielded GCS requires setup at a static location.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.524	0.509	0.522	-	0.522
Current President's Budget	0.524	0.509	0.537	-	0.537
Total Adjustments	0.000	0.000	0.015	-	0.015
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	0.015	-	0.015

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<u>Change Summary Explanation</u> No significant changes.		

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy										Date: February 2020		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV				Project (Number/Name) 2292 / Unmanned Air Systems (Intel)			
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
2292: Unmanned Air Systems (Intel)	5.444	0.524	0.509	0.537	-	0.537	0.540	0.562	0.573	0.584	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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The new CDD shall incorporate unique mission kits, mission payloads, air vehicle enhancements, and modifications of UAS and related ground control stations for the family of Group 1 and Group 2 tactical UAS. These capability sets include Group 1 Short Range/Short Endurance (SR/SE), Group 1 Medium Range/Medium Endurance (MR/ME), and Group1/Group 2 Long Range/Long Endurance (LR/LE). Group 1 UAS are small systems, less than 20 pounds in weight and Group 2 are systems, between 21 pounds and 55 pounds in weight. In addition to the ORD/CDD requirements, the FoSUAS (formerly SURSS) program also conducts Field User Evaluations (FUEs) to support Universal Urgent Needs Statements (UUNS) that inform future USMC systems procurements. Movement towards SUAS Common Control Architecture (SCCA) capability [formerly considered as Single Operator Man-Portable Ground Control System (GCS) / Target Handoff System (SOMGCS/THS)] aligning to Army Tactical Open Government Architecture (TOGA) efforts, reduces the size, weight, and manpower required to operate a FoSUAS GCS, increases the mobility of the operator, and improves digital interoperability. A SCCA capability shall be fully mobile and can be attached to the operator while the fielded GCS requires setup at a static location.

Development efforts for FoSUAS are ongoing in order to keep Group 1 and Group 2 UAS capability in line with emerging technologies and threats. FoSUAS is developing a SCCA to integrate with the FoSUAS to improve portability digital interoperability and durability. SCCA provides enhanced opportunities to detect irregular and asymmetric threats in a variety of domains, to include urban domains, providing the warfighter with enhanced situational awareness and understanding. Laser marker and Signals Intelligence (SIGINT) integration continue being developed and integrated to improve effectiveness and interoperability to better support the warfighter. Improvements such as solar technology, improved batteries, software upgrades, and alternative repair components are being explored to improve effectiveness, reliability, and reduce support costs. In addition, required initial and recurring cyber assessments are planned in order to meet OSD mandated requirements for waivers for both CONUS and OCONUS SUAS operations.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Product Development and Support	0.381	0.259	0.401	0.000	0.401
Articles:	-	-	-	-	-

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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV	Project (Number/Name) 2292 / Unmanned Air Systems (Intel)			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>FY 2020 Plans: -Initiate integration of electronic warfare capability (SIGINT) kit, laser marker, and Mobile Ad hoc Networks communication relay (MANET). -Complete software development for SOMGCS/THS to improve digital interoperability with RQ-20 PUMA.</p> <p>FY 2021 Base Plans: -Integrate electronic warfare capability (SIGINT) kit, laser marker, and SUAS Common Control Architecture (SCCA) -Complete initial and recurring Cyber Assessments of FoSUAS IAW OSD direction</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.142M due to Commercial Off-the-Shelf (COTS) UAS Analysis/Cyber Security support.</p>					
<p>Title: Test and Evaluation (Operational Assessment)</p> <p align="right">Articles:</p>	0.143 -	0.250 -	0.136 -	0.000 -	0.136 -
<p>FY 2020 Plans: -Continue operational assessment of MANET, and Laser Marker for future platforms. -Continue assessment of low cost, commercial available Unmanned Aerial Systems to inform future procurements, and determine potential adversary capabilities.</p> <p>FY 2021 Base Plans: -Perform operational assessment of SIGINT, Laser Marker, and SUAS Common Control Architecture (SCCA) for FoSUAS platforms. -Continue assessment of low cost, commercial available Unmanned Aerial Systems to inform future procurements, and determine potential adversary capabilities.</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: No significant changes.</p>					
Accomplishments/Planned Programs Subtotals	0.524	0.509	0.537	0.000	0.537

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy	Date: February 2020
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV	Project (Number/Name) 2292 / Unmanned Air Systems (Intel)
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PMC/4757: RQ-11 UAV	3.848	28.036	24.853	-	24.853	24.625	14.451	25.421	25.242	Continuing	Continuing

Remarks

D. Acquisition Strategy

The program office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with incremental developments to meet the final desired FoSUAS (formerly SURSS) requirements. The increment will involve an evolution to a Group 1-2 (Family of System) individually capable of executing requirements for short, medium and long range missions in fulfillment of the FoSUAS requirement and the transition to the capability set as determined to meet next generation requirements. A comprehensive review of the next generation service small UAS needs and requirements are being generated at CD&I to update current requirements documents.

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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 / 7				PE 0305232M / RQ-11 UAV				2292 / Unmanned Air Systems (Intel)							
Product Development (\$ in Millions)				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
SOMGCS/THS Software Integration	WR	NAWCWD : China Lake, CA	0.659	0.000		0.075	Jan 2020	0.000		-		0.000	0.000	0.734	-
MANET Integration	WR	NAWCAD : Pax River, MD	0.811	0.000		0.089	Jan 2020	0.000		-		0.000	0.000	0.900	-
SIGNIT, Laser Marker, and SCCA Integration	WR	NAWCAD : Pax River, MD	0.362	0.256	Dec 2018	0.095	Jan 2020	0.261	Dec 2020	-		0.261	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	1.342	0.000		0.000		0.000		-		0.000	0.000	1.342	-
Subtotal			3.174	0.256		0.259		0.261		-		0.261	Continuing	Continuing	N/A
Support (\$ in Millions)				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
COTS UAS Analysis/Cyber Security	WR	NAWCAD : Pax River, MD	0.250	0.125	Mar 2019	0.000		0.140	Mar 2021	-		0.140	Continuing	Continuing	Continuing
Engineering Analysis	WR	NAWCAD : Pax River, MD	1.354	0.000		0.000		0.000		-		0.000	0.000	1.354	-
Subtotal			1.604	0.125		0.000		0.140		-		0.140	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				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
SOMGCS/THS	WR	NAWCAD : Pax River, MD	0.225	0.000		0.080	Jan 2020	0.000		-		0.000	0.000	0.305	-
SIGNIT, Laser Marker, Operational Assessment and SCCA	WR	NAWCAD : Pax River, MD	0.283	0.143	Jan 2019	0.085	Jan 2020	0.136	Jan 2021	-		0.136	Continuing	Continuing	Continuing
MANET Operational Assessment	WR	NACWAD : Pax River, MD	0.158	0.000		0.085	Jan 2020	0.000		-		0.000	0.000	0.243	-
Subtotal			0.666	0.143		0.250		0.136		-		0.136	Continuing	Continuing	N/A

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV	Project (Number/Name) 2292 / Unmanned Air Systems (Intel)
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Proj 2292	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																																
Spectrum Selloff	RQ-11/20 Spectrum Transition																RQ-12 Spectrum Transition																																											
SUAS Common Control Architecture (SCCA)/SIGNIT/Laser Marker	Development and Integration Verification																AV Commercial Operational Assessment																																											
Future Capability Assessments (COTS/Cyber Security)	COTS/Cyber Assessment																																																											
Production Milestones																																																												
MIPR Orders	▲ MR/ME (8 Sys)				▲ VTOL (190 Sys)				▲ SOMGCS (50 Sys)				▲ MR/ME (42 Sys)				▲ SR/SE (40 Sys)				▲ MR/ME (124 Sys)				▲ SR/SE (71 Sys)				▲ LR/LE (32 Sys)				▲ MR/ME (133 Sys)				▲ LR/LE (52 Sys)				▲ MR/ME (128 Sys)				▲ LR/LE (48 Sys)				▲ MR/ME (106 Sys)				▲ LR/LE (46 Sys)				▲ MR/ME (103 Sys)			

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV	Project (Number/Name) 2292 / Unmanned Air Systems (Intel)
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2292				
Spectrum Selloff: Army Led RQ-11/RQ-20 Spectrum Transition	1	2019	4	2021
Spectrum Selloff: Marine Corps Led RQ-12 Spectrum Transition	1	2019	4	2023
SUAS Common Control Architecture (SCCA)/SIGNIT/Laser Marker: Development and Integration Verification	1	2019	4	2022
SUAS Common Control Architecture (SCCA)/SIGNIT/Laser Marker: AV Commercial Operational Assessment	1	2019	4	2022
Future Capability Assessments (COTS/Cyber Security): COTS/Cyber Assessment	2	2019	4	2025
Production Milestones: MIPR Orders: FY19 MR/ME	2	2019	2	2019
Production Milestones: MIPR Orders: FY20 SOMGCS	2	2020	2	2020
Production Milestones: MIPR Orders: FY20 VTOL	1	2020	1	2020
Production Milestones: MIPR Orders: FY20 MR/ME	2	2020	2	2020
Production Milestones: MIPR Orders: FY20 SR/SE	2	2020	2	2020
Production Milestones: MIPR Orders: FY21 MR/ME	2	2021	2	2021
Production Milestones: MIPR Orders: FY21 SR/SE	2	2021	2	2021
Production Milestones: MIPR Orders: FY21 LR/LE	2	2021	2	2021
Production Milestones: MIPR Orders: FY22 MR/ME	2	2022	2	2022
Production Milestones: MIPR Orders: FY22 LR/LE	2	2022	2	2022
Production Milestones: MIPR Orders: FY23 MR/ME	2	2023	2	2023
Production Milestones: MIPR Orders: FY23 LR/LE	2	2023	2	2023
Production Milestones: MIPR Orders: FY24 MR/ME	2	2024	2	2024
Production Milestones: MIPR Orders: FY24 LR/LE	2	2024	2	2024
Production Milestones: MIPR Orders: FY25 MR/ME	2	2025	2	2025

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / RQ-11 UAV	Project (Number/Name) 2292 / Unmanned Air Systems (Intel)
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: MIPR Orders: FY25 LR/LE	2	2025	2	2025