

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development	<b>R-1 Program Element (Number/Name)</b> PE 0305233A / RQ-7 UAV
--	--

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	-	17.863	7.817	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.680
RQ7: RQ-7 Shadow UAV	-	17.863	7.817	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.680

**Note**

Fiscal Year (FY) 2021 funding request has decreased to \$0.

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

The RQ-7Bv2 Shadow Tactical Unmanned Aircraft System (TUAS) provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA), and Force Protection. In line with the Army's Aviation Restructure Initiative (ARI) three Shadow Platoons are being integrated into the 11 Combat Aviation Brigade (CAB) Apache Reconnaissance Battalions. This will provide Aviation Brigades with Manned-Unmanned-Teaming (MUM-T) and enhanced Aerial Scout capabilities. The RQ-7B Shadow has logged approximately 1,225,000 flight hours, most of which were flown in support of Overseas Contingency Operations (OCO).

The full Shadow system consists of four air vehicles with payload, two Universal Ground Control stations, two Universal Ground Data Terminals, one Portable Ground Control Station with Portable Ground Data Terminal, Ground Support Equipment, two launchers, ten High Mobility Multipurpose Wheeled Vehicles (HMMWVs) with trailer(s), and a Light Medium Tactical Vehicle. Each system is equipped with one Maintenance Section Multifunctional (MSM) and is supported at the division level by Regional Logistics Points. The baseline fielded payload was the electro-optic infrared (EO/IR), but half of those have been replaced with a Laser Designator (LD) payload. An Improved Payload for Shadow, selected by Product Manager Electro-Optic/Infrared (PdM EO/IR), will be integrated and qualified in FY 2019-2020. 110 of 115 Shadow systems required by the Army Acquisition Objective (AAO) have been resourced.

Justification: FY 2021. Zero funding submitted.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	17.863	7.817	0.000	-	0.000
Current President's Budget	17.863	7.817	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0305233A / RQ-7 UAV				<b>Project (Number/Name)</b> RQ7 / RQ-7 Shadow UAV			
<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>
RQ7: RQ-7 Shadow UAV	-	17.863	7.817	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.680
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Fiscal Year (FY) 2021 funding request has decreased to \$0.

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

The RQ-7Bv2 Shadow Tactical Unmanned Aircraft System (TUAS) provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA), and Force Protection. In line with the Army's Aviation Restructure Initiative (ARI) three Shadow Platoons are being integrated into the 11 Combat Aviation Brigade (CAB) Apache Reconnaissance Battalions. This will provide Aviation Brigades with Manned-Unmanned-Teaming (MUM-T) and enhanced Aerial Scout capabilities. The RQ-7B Shadow has logged approximately 1,225,000 flight hours, most of which were flown in support of Overseas Contingency Operations (OCO).

The full Shadow system consists of four air vehicles with payload, two Universal Ground Control stations, two Universal Ground Data Terminals, one Portable Ground Control Station with Portable Ground Data Terminal, Ground Support Equipment, two launchers, ten High Mobility Multipurpose Wheeled Vehicles (HMMWVs) with trailer(s), and a Light Medium Tactical Vehicle. Each system is equipped with one Maintenance Section Multifunctional (MSM) and is supported at the division level by Regional Logistics Points. The baseline fielded payload was the electro-optic infrared (EO/IR), but half of those have been replaced with a Laser Designator (LD) payload. An Improved Payload for Shadow, selected by Product Manager Electro-Optic/Infrared (PdM EO/IR), will be integrated and qualified in FY2019-2020. 110 of 115 Shadow systems required by the Army Acquisition Objective (AAO) have been resourced.

Justification: For FY 2021, zero funding request submitted.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Air Vehicle Improvements <b>Description:</b> Air Vehicle Improvements	3.768	-	-
<b>Title:</b> Ground Equipment Improvements <b>Description:</b> Ground Equipment Improvements	7.218	-	-
<b>Title:</b> Test and Evaluation <b>Description:</b> Test and Evaluation  <b>FY 2020 Plans:</b>	3.542	3.427	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305233A / RQ-7 UAV	<b>Project (Number/Name)</b> RQ7 / RQ-7 Shadow UAV

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Completed Funds Test and Evaluation for the Shadow V2 Block III upgrade <i><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></i> For FY 2021, zero funding request submitted.			
<i><b>Title:</b></i> System Engineering/Program Management <i><b>Description:</b></i> System Engineering/Program Management <i><b>FY 2020 Plans:</b></i> Continued to fund System Engineering/Program management <i><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></i> For FY 2021, zero funding request submitted.	1.868	1.330	-
<i><b>Title:</b></i> One System Remote Video Terminal (OSRVT) <i><b>Description:</b></i> OSRVT <i><b>FY 2020 Plans:</b></i> Continued to fund interoperability and performance improvements for OSRVT. <i><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></i> For FY 2021, zero funding request submitted.	1.467	3.060	-
<b>Accomplishments/Planned Programs Subtotals</b>	17.863	7.817	-

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<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>
• A00018: RQ-7 UAV MODS	154.114	68.983	0.000	-	0.000	-	-	-	-	0.000	223.097

**Remarks**

**D. Acquisition Strategy**

A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAS. A successful Milestone II Army Systems Acquisition Review Council (ASARC) was conducted 21 Dec 99 and a Milestone III Decision was reached on 25 Sep 02. The full rate production contract was awarded 27 Dec 02 and in FY 2009 the last of the authorized 104 systems was placed on contract. Continued development of the selected Tactical Unmanned Aircraft Vehicle (TUAV) system will be accomplished through a series of modifications and retrofits such as Shadow v2, Communications Relay, Laser Designator, Block III engine, and reliability upgrades. Development/ integration of these improved capabilities will be through individual efforts on a competitive technical services contract with Shadow contractors. Development of the Block III engine was

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
2040 / 7	PE 0305233A / RQ-7 UAV	RQ7 / RQ-7 Shadow UAV

accomplished through a competitive process. Management responsibilities of the TUAV RQ-7B variant EO/IR/LD payload was transferred from Program Executive Office (PEO) Aviation to PEO Intelligence, Electronic Warfare and Sensors (IEW&S) on 14 Feb 17. This was done in accordance with (IAW) ASA(ALT) memorandum titled: Transfer of Army Office of Primary Responsibility and Program Management Responsibility for RQ-7B Shadow EO/IR/LD. An Improved Payload for Shadow, competitively selected by PEO IEW&S - Product Manager Electro-Optic/Infrared (PdM EO/IR), will be integrated and qualified in FY 2019-2020.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 7				PE 0305233A / RQ-7 UAV				RQ7 / RQ-7 Shadow UAV							
Management Services (\$ 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
Base: Program Management	RO	PM UAS : Redstone Arsenal, AL	4.088	0.705		-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			4.088	0.705		-		-		-		-	Continuing	Continuing	N/A
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
OIF Improvements / Block Upgrades / Capability Improvements	SS/CPFF	AAI Corporation : Hunt Valley, MD	4.605	1.869		-		-		-		-	0.000	6.474	-
System Engineering / Reliability Solutions	SS/CPFF	AAI Corporation : Hunt Valley, MD	2.025	6.116		-		-		-		-	Continuing	Continuing	-
Ground Equipment Improvements	C/CPFF	TBD: Competitive in FY18 : TBD: Competitive in FY18	22.231	-		-		-		-		-	Continuing	Continuing	Continuing
Block III Engine Development	C/CPFF	LSF : Redstone Arsenal, AL	30.725	-		-		-		-		-	0.000	30.725	-
Other Air Vehicle Improvements	C/CPFF	TBD: Competitive in FY18 : TBD: Competitive in FY18	17.018	0.246		-		-		-		-	Continuing	Continuing	Continuing
Assured, Positioning, Navigation, and Timing (APNT)	C/CPFF	TBD: Competitive in FY18 : TBD: Competitive in FY18	8.755	2.755		-		-		-		-	Continuing	Continuing	-
Payload Improvements	SS/CPFF	Various : Various	4.750	-		-		-		-		-	0.000	4.750	-
One System Remote Video Terminal (OSRVT)	SS/CPFF	AAI Corporation, MD : AAI Corporation, MD	16.525	1.467		3.060		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			106.634	12.453		3.060		-		-		-	Continuing	Continuing	N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305233A / RQ-7 UAV	<b>Project (Number/Name)</b> RQ7 / RQ-7 Shadow UAV
--	--	---

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Contractor Engineering Support	Various	Various : Various	3.212	0.262		0.685		-		-		-	Continuing	Continuing	Continuing
Base: Government Engineering and Logistic Support	MIPR	Various : Various	2.031	0.901		0.645		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			5.243	1.163		1.330		-		-		-	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 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			
RQ-7 Developmental Testing of Product Development	Various	Various : Various	6.888	1.443		-		-		-		-	Continuing	Continuing	Continuing
RQ-7 Operational Testing of Product Developments	MIPR	Various : Various	0.600	2.099		3.427		-		-		-	Continuing	Continuing	Continuing
OSRVT Developmental Testing	MIPR	Various : Various	0.100	-		-		-		-		-	0.000	0.100	-
OSRVT - Operational Testing	MIPR	Various : Various	2.033	-		-		-		-		-	0.000	2.033	-
<b>Subtotal</b>			9.621	3.542		3.427		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
	<b>Project Cost Totals</b>		125.586	17.863	7.817	-	-	Continuing	Continuing

**Remarks**

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305233A / RQ-7 UAV	<b>Project (Number/Name)</b> RQ7 / RQ-7 Shadow UAV
--	--	---

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Assured Positioning, Navigation, and Timing (APNT)	[Redacted]				[Redacted]																							
APNT	[Redacted]				[Redacted]																							
OSRVT Increment II Interoperability Improvements	[Redacted]				[Redacted]																							
OSRVT	[Redacted]				[Redacted]																							
Improved Payload Integration	[Redacted]				[Redacted]																							
Payload Integration	[Redacted]				[Redacted]																							
Test and Evaluation	[Redacted]				[Redacted]																							
Test	[Redacted]				[Redacted]																							

**UNCLASSIFIED**

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

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305233A / RQ-7 UAV	<b>Project (Number/Name)</b> RQ7 / RQ-7 Shadow UAV
--	--	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Assured Positioning, Navigation, and Timing (APNT)	3	2016	4	2019
OSRVT Increment II Interoperability Improvements	1	2013	4	2020
Improved Payload Integration	2	2019	4	2020
Test and Evaluation	1	2020	4	2020