Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											Date: March 2019	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604113A *I Future Tactical Unmanned Aircraft System (FTUAS)*							
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	-	0.000	12.393	40.745	-	40.745	20.122	25.281	25.960	28.299	Continuing	Continuing
EX8: *Future Tactical Unmanned Aircraft System (FTUAS)*	-	0.000	12.393	40.745	-	40.745	20.122	25.281	25.960	28.299	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Future Unmanned Aircraft System (FUAS) is a critical system in the Multi-Domain Operations (MDO)battle concept that will employ MDO capabilities at all echelons and allow ground based forces to project power from land into other domains to defeat highly capable enemies, secure terrain, and consolidate gains. FUAS encompasses an array of capabilities from platoon soldiers to Division Commanders. The Joint Requirements Oversight Council (JROC) approved the FUAS Initial Capabilities Document (ICD) on 12 OCT 2018. The ICD includes requirements for Scalable Control Interface (SCI), Air Launched Effects (ALE), and Purpose-Driven UAS (to include Future Tactical UAS and Advanced UAS).

The Future Unmanned Aircraft System (FUAS) will be comprised of multiple components including the Future Tactical UAS (FTUAS) for the Brigade Combat Team (BCT), the Advanced UAS (AUAS) for the Combat Aviation Brigades (CAB), and Air Launched Effects (ALE). The FTUAS seeks to replace the RQ-7 assets within the Brigade Combat Teams. Key attributes of the FTUAS focus on Rapid Deployability, Expeditionary Maneuver, and Mobility for adaptive and agile operations. FTUAS will consist of an aircraft subsystem that will include the airframe, propulsion, avionics, communications, navigation, and software systems; aircraft-specific ground support equipment including power generation, transportation, or command and control equipment; aircraft software; and required engineering, logistics, and programmatic support. FUAS will penetrate defense-in-depth environments by employing Air Launched Effects (ALE) with teaming and swarming effects to detect, decoy, jam RADAR and communications, conduct cyber-attack, spoof and jam GPS, and kinetic engagement.

Justification: FY 2020 FTUAS RDTE Base funding of $40.745 million (M) will be utilized for the following: 1) $18.079M to support the USARPAC Multi-Domain Task Force (MDTF) Demonstration, 2) $20.000M to support ALE Early Systems Analysis, 3) $2.666M provides Systems Engineering and Program Management (SEPM) to support of FTUAS and ALE development and preparation of pre-milestone decision documentation.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army					Date: March 2019
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604113A *I Future Tactical Unmanned Aircraft System (FTUAS)*		
B. Program Change Summary ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Previous President's Budget	0.000	12.393	5.645	-	5.645
Current President's Budget	0.000	12.393	40.745	-	40.745
Total Adjustments	0.000	0.000	35.100	-	35.100
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	35.100	-	35.100

Change Summary Explanation

Increase of $35.100 million in FY2020 will provide required support for the Multi-Domain Task Force (MDTF) demonstration and ALE Early Systems Analysis.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	Project (Number/Name) EX8 / *Future Tactical Unmanned Aircraft System (FTUAS)*	

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
EX8: *Future Tactical Unmanned Aircraft System (FTUAS)*	-	0.000	12.393	40.745	-	40.745	20.122	25.281	25.960	28.299	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Future Unmanned Aircraft System (FUAS) is a critical system in the Multi-Domain Operations (MDO) battle concept that will employ MDO capabilities at all echelons and allow ground based forces to project power from land into other domains to defeat highly capable enemies, secure terrain, and consolidate gains. FUAS encompasses an array of capabilities from platoon soldiers to Division Commanders. The FUAS Initial Capabilities Document (ICD) was approved by the Joint Requirements Oversight Council (JROC) on 12 OCT 2018. The ICD includes requirements for Scalable Control Interface (SCI), Air Launched Effects (ALE), and Purpose-Driven UAS (to include Future Tactical UAS and Advanced UAS).

The Future Unmanned Aircraft System (FUAS) will be comprised of multiple components including the Future Tactical UAS (FTUAS) for the Brigade Combat Team (BCT), the Advanced UAS (AUAS) for the Combat Aviation Brigades (CAB), and Air Launched Effects (ALE). The FTUAS seeks to replace the RQ-7 assets within the Brigade Combat Teams. Key attributes of the FTUAS focus on Rapid Deployability, Expeditionary Maneuver, and Mobility for adaptive and agile operations. FTUAS will consist of an aircraft subsystem that will include the airframe, propulsion, avionics, communications, navigation, and software systems; aircraft-specific ground support equipment including power generation, transportation, or command and control equipment; aircraft software; and required engineering, logistics, and programmatic support. FUAS will penetrate defense-in-depth environments by employing Air Launched Effects (ALE) with teaming and swarming effects to detect, decoy, jam RADAR and communications, conduct cyber-attack, spoof and jam GPS, and kinetic engagement.

Justification: FY 2020 FTUAS Base funding of $40.745 million (M) will be utilized for the following: 1) $18.079M to support the USARPAC Multi-Domain Task Force (MDTF) Demonstration, 2) $20.000M to support ALE Early Systems Analysis, 3) $2.666M provides Systems Engineering and Program Management (SEPM) to support of FTUAS and ALE development and preparation of pre-milestone decision documentation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Multi Domain Task Force (MDTF) Demonstration	-	10.800	18.079
Description: Funding for USARPAC Multi-Domain Task Force (MDTF) Demonstration supports UAS aircraft, payload and Multi-Function Electronic Warfare (MFEW) demonstration which will inform FTUAS requirements and Analysis of Alternatives (AoA).			
FY 2019 Plans: Funding for USARPAC Multi-Domain Task Force (MDTF) Experimentation supports UAS aircraft, payload and Multi-Function Electronic Warfare (MFEW) experimentation which will inform FTUAS requirements and Analysis of Alternatives (AoA).			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Tactical Unmanned Aircraft System (FTUAS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Funding for USARPAC Multi-Domain Task Force (MDTF) Demonstration supports UAS aircraft, payload and Multi-Function Electronic Warfare (MFEW) demonstration which will inform FTUAS requirements and Analysis of Alternatives (AoA). ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $15.100 million in FY2020 will provide required support for the MDTF demonstration.			
Title: Air Launched Effects (ALE) Early Systems Analysis ***Description:*** ALE Early Systems Analysis in preparation for a Materiel Development Decision (MDD), and to inform requirements and an Analysis of Alternatives (AoA). The PM will conduct market research, early systems engineering analyses and conduct an assessment of how the proposed candidate materiel solution approaches are technically feasible and have the potential to effectively address capability gaps, desired operational attributes, and associated external dependencies. ***FY 2020 Plans:*** Funds ALE market research, early systems engineering analyses and assessment of proposed candidate materiel solution approaches. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $20M in FY2020 funds ALE market research, early systems engineering analyses and assessment of proposed candidate materiel solution approaches.	-	-	20.000
Title: System Engineering/Program Management ***Description:*** System Engineering and Program Management (SEPM) ***FY 2019 Plans:*** Funding for System Engineering/Program Management (SEPM) to support FTUAS pre-milestone decision requirements such as: MDTF Experimentation, market research, Validated On-line Threat (VOLT) Assessment, Analysis of Alternatives (AoA), independent cost estimates and other required milestone documents. ***FY 2020 Plans:*** Funding for SEPM to support FTUAS pre-milestone decision requirements such as: Analysis of Alternatives (AoA), independent cost estimates and other required milestone documents ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Program increasing funds due to upcoming MDD in FY2021.	-	1.593	2.666
Accomplishments/Planned Programs Subtotals	-	12.393	40.745

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Tactical Unmanned Aircraft System (FTUAS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• A01310: *Tactical Unmanned Aircraft System (TUAS)*	-	-	12.100	-	12.100	1.101	25.345	38.100	55.400	0.000	132.046

Remarks

FY 2020 base procurement dollars in the amount of $12.1 million supports the FVL CFT FTUAS demonstration: Specifically, the procurement of 12 attrition air vehicles, New Equipment Training (NET) and PM support.

D. Acquisition Strategy

TRADOC Capabilities Manager (TCM) - Future Vertical Lift (FVL) has prepared an Initial Capabilities Document (ICD) that is in JROC staffing. PM TUAS will follow that approval with an MDD in FY 2021 and a subsequent Analysis of Alternatives phase.

The Future Vertical Lift (FVL) Cross Functional Team (CFT) is overseeing a demonstration effort in FY 2019 and FY 2020 that will inform the Future Tactical Unmanned Aircraft System (FTUAS) requirement to develop capability that will ultimately replace the RQ-7B (Shadow Tactical Unmanned Aircraft System) within the Brigade Combat Team (BCT) formation. Demonstration effort will focus on conducting analysis and obtaining field data that will be used to write the Capabilities Development Document that will serve as the formal requirement to replace the RQ-7B within the BCTs. As part of the program development, a Materiel Development Decision will be conducted in FY2021 followed by an Analysis of Alternatives and ultimately a decision that will identify the appropriate entry into the Milestone Decision process.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	Project (Number/Name) EX8 / *Future Tactical Unmanned Aircraft System (FTUAS)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management (SEPM)	C/TBD	PM TUAS : Redstone Arsenal	-	-		1.593		2.666		-		2.666	Continuing	Continuing	-
		Subtotal	-	-		1.593		2.666		-		2.666	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Launched Effects (ALE) Early Systems Analysis	TBD	PM TUAS : Redstone Arsenal	-	-		-		20.000		-		20.000	0.000	20.000	-
		Subtotal	-	-		-		20.000		-		20.000	0.000	20.000	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi Domain Task Force (MDTF) UAS Demonstration	SS/ Various	Various : Various	-	-		10.800		18.079		-		18.079	12.821	41.700	-
		Subtotal	-	-		10.800		18.079		-		18.079	12.821	41.700	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	-	-		12.393		40.745		-		40.745	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Tactical Unmanned Aircraft System (FTUAS)*

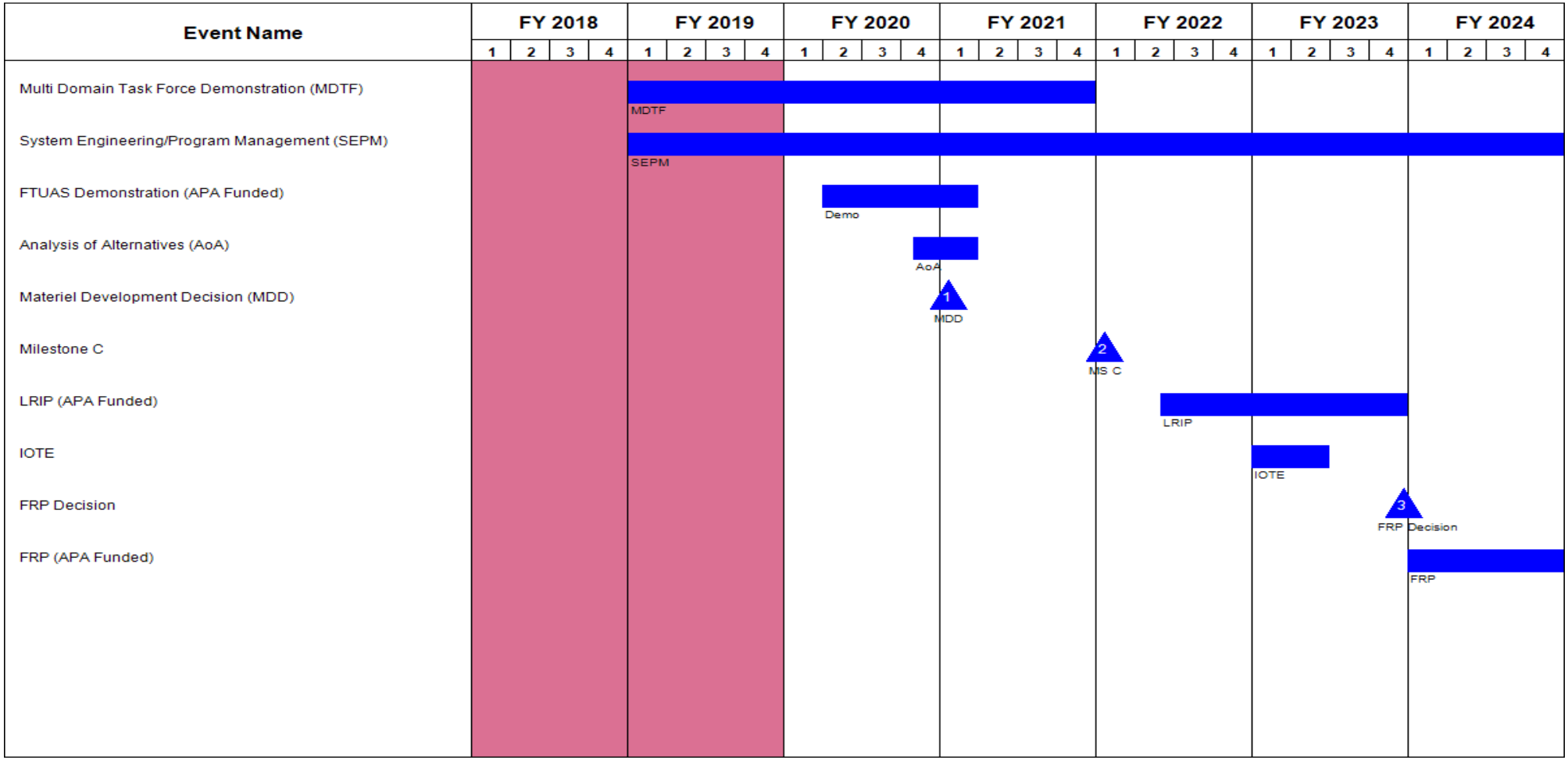

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Tactical Unmanned Aircraft System (FTUAS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Multi Domain Task Force Demonstration (MDTF)	1	2019	4	2021
System Engineering/Program Management (SEPM)	1	2019	4	2024
FTUAS Demonstration (APA Funded)	2	2020	1	2021
Analysis of Alternatives (AoA)	4	2020	1	2021
Materiel Development Decision (MDD)	1	2021	1	2021
Milestone C	1	2022	1	2022
LRIP (APA Funded)	2	2022	4	2023
IOTE	1	2023	2	2023
FRP Decision	4	2023	4	2023
FRP (APA Funded)	1	2024	4	2024