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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401132F I C-130J Program							
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	24.908	15.409	8.640	0.000	8.640	13.058	14.346	14.288	13.832	Continuing	Continuing
675061: C-130J	0.000	24.908	15.409	8.640	0.000	8.640	13.058	14.346	14.288	13.832	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 220												
Note This program, BA 7, PE 0401132F, project 675061, Mobile User Objective System (MUOS), is a new start.												
A. Mission Description and Budget Item Justification The C-130J is a medium-sized transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J aircraft, with its extended (by 15 feet) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). Special mission variants of the C-130J conduct airborne psychological operations (EC-130J), weather reconnaissance (WC-130J), search and rescue (HC-130J), and special operations (MC-130J and AC-130J). All aircraft variants must be capable of worldwide operations. This project also provides RDT&E funding for required capabilities that are grouped as "Block" upgrades or "Capability" updates. Content/requirements for these efforts is documented in International Program Directives (IPDs) as determined through the Cooperative Systems and Software Upgrade Requirements Management (COSSURM) process or other approved C-130J Joint User Group (JUG)processes. Activities required to complete development and integration of the common-core capabilities for all United States' variants are included in this project. This project also provides RDT&E funding for requirements that are outside of the JUG or COSSURM process. These efforts may include communication and Global Positioning Systems (GPS) system updates. The requirements are identified and concurred between the C-130J Program Office and Air Mobility Command (AMC). Requirements are documented through the C-130J Program Office approval process. This project provides RDT&E funding for studies and risk reduction activities. This project includes RDT&E funding for the following C-130J aircraft variants: C-130J stretch aircraft, C-130J short aircraft, EC-130J aircraft, WC-130J aircraft, HC-130J aircraft, MC-130J aircraft, and AC-130J aircraft. This project included RDT&E funding for Rapid Global Mobility (RGM) platform related activities including, but not limited to, prototyping, capability development, process activities, planning analysis, and systems engineering activities.												

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver C-130J weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.						
As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.						
This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.						
B. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		26.821	15.409	2.640	0.000	2.640
Current President's Budget		24.908	15.409	8.640	0.000	8.640
Total Adjustments		-1.913	0.000	6.000	0.000	6.000
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-1.000	0.000			
• SBIR/STTR Transfer		-0.913	0.000			
• Other Adjustments		0.000	0.000	6.000	0.000	6.000
Change Summary Explanation						
The FY 2018 funding was reduced -\$1M from a reprogramming and -\$0.0913M for SBIR transfer.						
The FY 2020 funding request was increased by \$6.0 million to fund the completion of ADS-B for the January 2020 mandate and the next phase of Capability Management Upgrades (CMU).						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
Title: Cooperative Systems and Software Upgrade Requirements Management (COSSURM)				0.200	0.260	0.100
Description: COSSURM - Collects potential requirements for inclusion into a Block Upgrade or Capability Management Update.						
FY 2019 Plans:						

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Continuation of COSSURM requirements review and analysis.				
FY 2020 Plans: Continuation of COSSURM requirements review and analysis				
FY 2019 to FY 2020 Increase/Decrease Statement: FY20 requirement is lower based on cooperative agreement. Effort is funded for current requirements.				
Title: Block 8.1 Description: BLOCK 8.1 Adds Identification Friend or Foe (IFF) Mode 5, Civil Data Link, Automatic Dependent Surveillance - Broadcast (ADS-B), Air Traffic Services (ATS)/Airline Operational Control (AOC) Data Link for Line of Sight (LOS) and Beyond Line of Sight (BLOS) communication, enhanced covert lighting, improved Public Address(PA) System, and Approach Procedure with Vertical guidance (APV)/ Localizer Performance with Vertical guidance (LPV) approach capability. Several avionics platforms are impacted that include Flight Management System Software, Mission Computer Software, Bus Interface Unit software, and Maintenance Management System. FY 2019 Plans: Continue development of the Block 8.1 ADS-B Out to meet the FY2020 FAA Mandate FY 2020 Plans: Continue development of the Block 8.1 ADS-B Out to meet the FY2020 FAA Mandate FY 2019 to FY 2020 Increase/Decrease Statement: FY20 requirement is lower than FY19 due to the phasing of the effort.		22.977	12.322	3.866
Title: Test & Evaluation Description: Test and evaluation planning, conduct, and support for developmental, and operational testing. FY 2019 Plans: Continuation of test support for ADS-B Out effort. FY 2020 Plans: Continuation of test planning and support for integration efforts. FY 2019 to FY 2020 Increase/Decrease Statement: FY20 requirement is higher than FY19 due to testing planned for joint interoperability and regression for Blk 8.1 integration		0.436	0.324	0.587
Title: Capability Management Update (CMU)		0.385	2.053	3.387

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Description: CMU's refine and build on Block upgrade modifications that improve operational effectiveness, satisfy emerging operational needs, and enhance human machine interface (HMI) to allow a workload that meets human factors standards and maintains the present crew complement. Avionics software impacted includes Flight Management System (FMS) Software, Mission Computer (MC) Software, Bus Interface Unit (BIU) software, and Maintenance Management System. FY 2019 Plans: Continuation of Common Core Development, correcting deficiencies and developing enhancements. FY 2020 Plans: Continuation of Common Core Development, correcting deficiencies and developing enhancements. FY 2019 to FY 2020 Increase/Decrease Statement: Increase in FY20 requirement based on identified deficiencies and corrective actions.				
Title: Other AMC Initiatives Description: C-130J initiatives/studies. FY 2019 Plans: Mission Planning software and updates continue. FY 2020 Plans: Mission Planning software and updates continue.		0.910	0.450	0.450
Title: Mobile User Objective System (MUOS) Description: Development of the new radio systems to replace existing Ultra High Frequency military satellite communications system (UHF MILSATCOM). This system will provide secure, global, beyond line-of-sight (BLOS) satellite voice connectivity utilizing the Mobile User Objective System (MUOS) satellite constellation and waveform. FY 2019 Plans: N/A FY 2020 Plans: Begin development effort of new MUOS radio systems FY 2019 to FY 2020 Increase/Decrease Statement: Effort to begin in FY2020		-	0.000	0.250
Accomplishments/Planned Programs Subtotals		24.908	15.409	8.640

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D. 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
• APAF 05 Line Item C1300J: C-130J Mods	187.779	130.478	150.186	-	150.186	120.888	164.002	176.980	12.417	967.212	1,909.942
• APAF 05 Line Item C130J0: C-130J	10.727	-	-	-	-	-	-	-	-	0.000	10.727
• APAF 02 Line Item C130J0: C-130J	741.708	35.858	8.276	-	8.276	8.424	8.593	8.747	8.906	1,612.013	2,432.525
Remarks											
E. Acquisition Strategy											
<p>The C-130J aircraft will be modified using a "block upgrade" strategy. The CNS/ATM, navigation safety requirement will initially, be met in three block upgrades. Block 6.0 development was funded from FY03-07. Block 7.0 started in FY07, and Block 8.1 began in FY12. Subsequently, C-130J modifications will be grouped into smaller updates known as Capability Management Updates (CMU). Other AMC initiatives are upgrades to hardware and software that have arisen after the formation of the block upgrades and CMUs.</p> <p>In order to better manage the fleet and to avoid having to simultaneously support three separate aircraft configurations (Block 6, Block 7 and Block 8.1) the USAF has decided to combine the Block 7 and Block 8.1 mods. This will allow the aircraft and trainers to only have to be modified one time.</p> <p>The proportion of CNS/ATM and navigation safety requirements allocated to Blocks 6.0 through 8.1 was determined via a design trade study conducted by Lockheed Martin (the C-130J prime contractor) and verified by the C-130J system program office and AMC. The development costs are being shared via a global Project Arrangement (PA) by the United States (USAF, USMC, USCG), the United Kingdom, Italy, Australia, Denmark, Canada, and Norway. An international program office (IPO), with USAF lead (Wright Patterson AFB, OH), manages the block upgrades development and CMU efforts. Retrofit of a Block on the aircraft is the responsibility of each nation.</p> <p>In order to meet the Federal Aviation Administration 2020 mandate the USAF will install the Block 8.1 ADS-B Out/Mode V IFF solution on all C-130J variants not scheduled to receive Block 8.1 by January 2020. This is Mod #8649, ADS-B Out Acceleration. All C-130Js will still require Block 8.1.</p>											
F. Performance Metrics											
<p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force **Date:** February 2019

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J
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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
C-130J Block 8.1, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Information Sytems : Marietta, GA	0.000	21.103	Apr 2018	11.070	Feb 2019	2.820		-		2.820	17.076	52.069	180.030
C-130J Capability Management Upgrades (CMU), Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Aero : Marietta, GA	0.000	0.385	May 2018	1.563	Jan 2019	3.120		-		3.120	10.706	15.774	6.480
C-130J AMC-Initiatives, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Aero : Marietta, GA	0.000	0.910	Feb 2018	0.727	Feb 2019	0.450		-		0.450	4.629	6.716	14.730
C-130J Mobile User Objective System (MUOS), Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Aero : Marietta, GA	0.000	0.000		0.000		0.250		-		0.250	0.000	0.250	-
Subtotal			0.000	22.398		13.360		6.640		-		6.640	32.411	74.809	N/A

Remarks

C-130J Block 8.1 Total Cost is below Target Value of Contract to account for the expected cost reduction initiatives on this Cost Plus Award Fee Contract.

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
C-130J Block 8.1 DT and E	PO	EGLIN AFB : Eglin, FL	0.000	0.436	Jan 2018	-		-		-		-	0.000	0.436	7.490
Subtotal			0.000	0.436		-		-		-		-	0.000	0.436	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
C-130J IPO Support	TBD	N/A : NV	0.000	1.874	Nov 2017	1.789	Oct 2018	1.900	Oct 2019	-		1.900	0.000	5.563	5.014

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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
C-130J COSSURM	TBD	RAF : NV	0.000	0.200	Jan 2018	0.260	Jan 2019	0.100		-		0.100	0.000	0.560	2.443
Subtotal			0.000	2.074		2.049		2.000		-		2.000	0.000	6.123	N/A

Remarks
 The COSSURM contract is managed by the United Kingdom Royal Air Force (RAF)

	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	0.000	24.908	15.409	8.640	-	8.640	32.411	81.368	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401132F / C-130J Program					Project (Number/Name) 675061 / C-130J			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
C-130J																												
Block 8.1 Development																												
Block 8.1 FCA/ PCA (Functional & Physical Configuration Audit)																												
Block 7.0/ 8.1 Trial Kit Installation (TKI) WC																												
CMU																												
Mobile User Objective System (MUOS)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
C-130J				
Block 8.1 Development	1	2018	4	2020
Block 8.1 FCA/ PCA (Functional & Physical Configuration Audit)	1	2018	2	2018
Block 7.0/ 8.1 Trial Kit Installation (TKI) WC	1	2018	4	2023
CMU	1	2018	4	2024
Mobile User Objective System (MUOS)	4	2020	2	2023