

# UNCLASSIFIED

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 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605221F / KC-46							
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	5,494.015	75.598	80.170	59.561	0.000	59.561	78.948	50.113	22.762	23.119	0.000	5,884.286
651120: Pegasus Capability Improvements	0.000	0.000	13.503	13.868	0.000	13.868	41.500	26.500	22.762	23.119	0.000	141.252
655271: KC-46 RDT&E	5,494.015	75.598	66.667	45.693	0.000	45.693	37.448	23.613	0.000	0.000	0.000	5,743.034
Program MDAP/MAIS Code: 387												

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

Replacement of the legacy tanker fleet will take place in several stages. The initial tanker replacement increment of KC-46s will replace roughly a third of the current capability. Future programs will ultimately recapitalize the entire tanker fleet over a period of more than 30 years. The Air Force completed an Analysis of Alternatives (AoA) in Apr 2006 to determine the most appropriate strategy to recapitalize the aging fleet of aerial refueling aircraft. Based on this analysis, the Air Force concluded a strategy of full and open competition to select a commercial derivative replacement tanker aircraft would result in a best value tanker contract. To initiate the first phase of the tanker replacement, the KC-46 program released a final Request for Proposal (RFP) on 24 Feb 2010, and entered source selection on 9 Jul 2010. The KC-46 program held a Milestone B (MS B) Defense Acquisition Board (DAB) on 23 Feb 2011, received approval to enter Engineering and Manufacturing Development (EMD) from the Undersecretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)) on 24 Feb 2011, and awarded the KC-46 EMD contract to Boeing on 24 Feb 2011 to develop and procure 179 KC-46 aircraft. The program is procuring four RDT&E aircraft for integration and demonstration of capability which will ultimately be operationally fielded. During production, the program plans to procure 175 aircraft throughout 13 lots. The KC-46 program held a MS C DAB on 12 Aug 2016 and received approval to enter Low Rate Initial Production (LRIP). The program awarded LRIP Lots 1 and 2 on 18 Aug 2016, LRIP Lot 3 on 27 Jan 2017, LRIP Lot 4 on 10 Sep 2018, and LRIP Lot 5 award is planned for Jul 2019, totaling 67 aircraft. The Air Force delivered the first KC-46 to McConnell Air Force Base on 25 Jan 2019. KC-46 funding also supports Training Systems, Direct Mission Support, Program Management Administration (PMA) activities, government developmental and operational test support, mission planning capability development, various studies and analyses, engineering changes, and future tanker replacement planning activities.

The KC-46 will provide the capability to fuel joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger, and aeromedical evacuation capabilities. The KC-46 will operate in day/night and adverse weather conditions to enable deployment, employment, sustainment, and redeployment of U.S. joint, allied, and coalition forces. The KC-46 will have communication, navigation, and surveillance equipment for worldwide operations; the capability to perform missions in chemical and biological environments; the ability to operate in up to medium threat environments with self-defense/protection (both active and passive) capabilities; and the necessary battlespace awareness to mitigate survivability threats.

The Aircrew Training System (ATS) and the Maintenance Training System (MTS) are being developed and procured using KC-46 funding. The ATS contract was awarded on 1 May 2013 to FlightSafety Services Corporation. The ATS contract will provide Aircrew Training Devices (ATDs), to include Weapon System Trainers (WSTs), Boom Operator Trainers (BOTs), Fuselage Trainers (FuTs), and Part-Task Trainers (PTTs) at each Main Operating Base (MOB) and the Formal Training Unit (FTU). The ATS contract will also support Distributed Mission Operations (DMO), provide aircrew instruction, develop courseware, provide logistics support, acquire a technical data package to support future competition efforts, and manage training device concurrency with the aircraft.

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<p>The MTS contract was awarded 6 Jul 2016 to The Boeing Company. The MTS acquisition focuses on designing, developing, testing, producing, and fielding an optimized training system for KC-46 maintainers by integrating various forms of training media and Maintenance Training Devices (MTDs) into a "blended" solution. This blended solution includes the appropriate mix of hardware and software, "high-fidelity" Augmented Hardware Training Devices (AHTDs), PTTs, Interactive Multimedia Instruction (IMI), and emerging technologies to meet validated Air Mobility Command (AMC) maintenance training requirements.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver KC-46 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.</p> <p>The FY 2020 funding request was reduced by \$20.161 million to account for the availability of prior year execution balances.</p> <p>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.</p> <p>This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.</p>							
B. Program Change Summary (\$ in Millions)			FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget			93.845	88.170	79.722	0.000	79.722
Current President's Budget			75.598	80.170	59.561	0.000	59.561
Total Adjustments			-18.247	-8.000	-20.161	0.000	-20.161
• Congressional General Reductions			0.000	0.000			
• Congressional Directed Reductions			-10.000	-8.000			
• Congressional Rescissions			0.000	0.000			
• Congressional Adds			0.000	0.000			
• Congressional Directed Transfers			0.000	0.000			
• Reprogrammings			-5.700	0.000			
• SBIR/STTR Transfer			-2.547	0.000			
• Other Adjustments			0.000	0.000	-20.161	0.000	-20.161
Change Summary Explanation							
FY 2018 was reduced \$18.247M. \$10.0M by a Congressional mark "delayed test program", \$5.7M by reprogrammings and \$2.247M by Small Business Innovation Research (SBIR).							

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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	
3600: Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)	PE 0605221F / KC-46	
<p>FY 2019 was reduced \$8.0M by a Congressional mark "forward financed".</p> <p>The FY 2020 funding request was reduced by \$20.161 million to account for the availability of prior year execution balances.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force									Date: February 2019			
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0605221F / KC-46				Project (Number/Name) 651120 / Pegasus Capability Improvements			
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
651120: Pegasus Capability Improvements	0.000	0.000	13.503	13.868	0.000	13.868	41.500	26.500	22.762	23.119	0.000	141.252
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>The KC-46 will provide the capability to fuel joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger, and aeromedical evacuation capabilities. The KC-46 will operate in day/night and adverse weather conditions to enable deployment, employment, sustainment, and redeployment of U.S. joint, allied, and coalition forces. The KC-46 will have communication, navigation, and surveillance equipment for worldwide operations; the capability to perform missions in chemical and biological environments; the ability to operate in up to medium threat environments with self-defense/ protection (both active and passive) capabilities; and the necessary battlespace awareness to mitigate survivability threats.</p> <p>The dynamics and mission urgency of the post-production (post-DD-250) environment requires the program to maintain a flexible and responsive posture to support a broad range of mission support needs. The KC-46 will continue to identify, design, develop, integrate, verify, certify, produce, install, field, and sustain a comprehensive range of non-recurring and recurring post-production, air vehicle enhancements and field support needs. These needs may originate from programmed Mobility Air Force (MAF) requirements, Combatant Commander Joint or Urgent Operational Needs (JUON/UON), non-programmed Federal Aviation Administration (FAA) directives, requirements identified and supported by HHQ Enterprise Capability Collaboration Teams (i.e., High Value Airborne Asset [HVAA], Air Superiority 2030, and Multi-Domain Command and Control [MDC2]), or correction of field deficiencies.</p> <p>The KC-46 will continue to develop, field, and sustain warfighter capabilities to meet evolving threats and mission support requirements through Block or discrete modification or modernization programs depending on mission urgency, available funding, and programmatic and technical risks. Post-production requirements can include, but will not be limited to: avionics and structural systems/ architecture and subsystem updates, general mission equipment updates and procurement, general sustainment support, studies and analyses, simulation and training, and correction of field deficiencies.</p> <p>BPAC 651120 funding will also support Program Management Administration (PMA) activities, test support, mission planning capability development and various studies and analyses.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver KC-46 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.</p>												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: KC-46A Block 1 Pegasus Advanced Communications Suite (PACS)								-	13.021	13.376	-	13.376

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p><b>Description:</b> The KC-46A Block 1 Pegasus Advanced Communications Suite (PACS) program will satisfy Department of Defense (DoD), National Security Agency (NSA), Department of Transportation (DoT), and USAF mandates by upgrading legacy Tactical Data Link 16, Beyond Line-of-Sight (BLOS) Ultra High Frequency (UHF) Line-of-Sight (LOS) capabilities with next-generation Link 16 terminals and UHF secure, global, BLOS and anti-jam LOS satellite voice communications capabilities for the KC-46 weapon system. PACS enables compatibility and interoperability with current and planned future joint and allied forces while simultaneously increasing the survivability of secure global voice and data communications capabilities between Mobility Air Force (MAF) C2 agencies and MAF aircraft operating worldwide in or near contested environments.</p> <p><b>FY 2019 Plans:</b> Conduct Acquisition Strategy Plan (ASP) and release Request For Proposal (RFP) for KC-46A Block 1 PACS EMD program. Move funding to KC-46 baseline program to support boom telescope stiffness Engineering Change Proposal (ECP) and process a Below Threshold Reprogramming (BTR) of \$3.764M to Open Skies Digital Visual Imaging System (DVIS).</p> <p><b>FY 2020 Base Plans:</b> Move funding to KC-46 baseline program to support boom telescope stiffness Engineering Change Proposal (ECP).</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding originally increased due to planned contract award of Block 1 PACS EMD program. Now funding will move to KC-46 baseline program to support boom telescope stiffness Engineering Change Proposal (ECP). Block 1 PACS contract award will be deferred to FY21.</p>							
<p><b>Title:</b> Support</p> <p><b>Description:</b> Studies and analysis to support planning activities for future initiatives for upgrades, future tanker replacement planning, and miscellaneous Program Office support and planning. Also includes requirements such as travel and training.</p> <p><b>FY 2019 Plans:</b> Program Office Support and planning.</p> <p><b>FY 2020 Base Plans:</b> Continue Program Office Support and planning.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b></p>			-	0.482	0.492	-	0.492

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Funding increased for future initiatives, planning activities, and program office support.											
<b>Accomplishments/Planned Programs Subtotals</b>							-	13.503	13.868	-	13.868
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 41221F/ KC046A: KC-46A Tanker	1.213	8.547	10.213	-	10.213	27.394	58.641	88.549	-	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
The KC-46 Post-Production Change Management (PPCM) construct is comprised of processes and tools, specifically tailored to a broad spectrum of post-production requirements to support the KC-46 enterprise (e.g. weapon system, sustainability, training devices). PPCM is designed to leverage competition when applicable and emphasize configuration management and discrete cost accounting methodologies. KC-46 PPCM oversight will promote competition throughout the life cycle of the KC-46A fleet. All KC-46 post-production requirements and associated acquisition strategies will be carefully managed, reviewed, and approved at the appropriate levels by the KC-46 Division and/or Tanker Directorate senior functional leaders. PPCM requirements will employ multiple contract-types, tailored to the requirement and documented in discrete Acquisition Strategy Panel briefings, to minimize cost, technical, and schedule execution risks and ensure on-time deliverables. In addition, all ACAT-level programs, deriving from the PPCM process, will follow Department of Defense (DoD) Directive 5000.01 and DoD Instruction 5000.02 guidelines and directives, as applicable, to ensure management controls--commensurate with the scope and cost of the supported requirement.											
<b>E. Performance Metrics</b>											
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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0605221F / KC-46				Project (Number/Name) 651120 / Pegasus Capability Improvements					
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
KC-46A Capability Upgrades (to include modification and modernization)	C/CPFF	The Boeing Company : Seattle, WA	0.000	-		13.021		13.376	Nov 2020	-		13.376	Continuing	Continuing	-
Subtotal			0.000	-		13.021		13.376		-		13.376	Continuing	Continuing	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
KC-46A Studies and analysis to support future initiatives for upgrades	Various	Not specified. : TBD	0.000	-		0.482	Jan 2020	0.392	Jan 2021	-		0.392	Continuing	Continuing	-
Subtotal			0.000	-		0.482		0.392		-		0.392	Continuing	Continuing	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 Administration Activities	Various	KC-46 Program Office : Dayton, W-P AFB, OH	0.000	-		-		0.100	Jan 2021	-		0.100	0.000	0.100	-
Subtotal			0.000	-		-		0.100		-		0.100	0.000	0.100	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			0.000	-		13.503		13.868		-		13.868	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)		Project (Number/Name)	
3600 / 5		PE 0605221F / KC-46		651120 / Pegasus Capability Improvements	

	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
Pegasus Capability Improvements																												
KC-46A Block I PACS																												



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605221F / KC-46	Project (Number/Name) 651120 / Pegasus Capability Improvements

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Pegasus Capability Improvements				
KC-46A Block I PACS	1	2021	4	2024

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Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0605221F / KC-46				Project (Number/Name) 655271 / KC-46 RDT&E			
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
655271: KC-46 RDT&E	5,494.015	75.598	66.667	45.693	0.000	45.693	37.448	23.613	0.000	0.000	0.000	5,743.034
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Replacement of the legacy tanker fleet will take place in several stages. The initial tanker replacement increment of KC-46s will replace roughly a third of the current capability. Future programs will ultimately recapitalize the entire tanker fleet over a period of more than 30 years. The Air Force completed an Analysis of Alternatives (AoA) in Apr 2006 to determine the most appropriate strategy to recapitalize the aging fleet of aerial refueling aircraft. Based on this analysis, the Air Force concluded a strategy of full and open competition to select a commercial derivative replacement tanker aircraft would result in a best value tanker contract. To initiate the first phase of the tanker replacement, the KC-46 program released a final Request for Proposal (RFP) on 24 Feb 2010, and entered source selection on 9 Jul 2010. The KC-46 program held a Milestone B (MS B) Defense Acquisition Board (DAB) on 23 Feb 2011, received approval to enter Engineering and Manufacturing Development (EMD) from the Undersecretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)) on 24 Feb 2011, and awarded the KC-46 EMD contract to Boeing on 24 Feb 2011 to develop and procure 179 KC-46 aircraft. The program is procuring four RDT&E aircraft for integration and demonstration of capability which will ultimately be operationally fielded. During production, the program plans to procure 175 aircraft throughout 13 lots. The KC-46 program held a MS C DAB on 12 Aug 2016 and received approval to enter Low Rate Initial Production (LRIP). The program awarded LRIP Lots 1 and 2 on 18 Aug 2016, LRIP Lot 3 on 27 Jan 2017, LRIP Lot 4 on 10 Sep 2018, and LRIP Lot 5 award is planned for Jul 2019, totaling 67 aircraft. The Air Force delivered the first KC-46 to McConnell Air Force Base on 25 Jan 2019. KC-46 funding also supports Training Systems, Direct Mission Support, Program Management Administration (PMA) activities, government developmental and operational test support, mission planning capability development, various studies and analyses, engineering changes, and future tanker replacement planning activities.

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The MTS contract was awarded 6 Jul 2016 to The Boeing Company. The MTS acquisition focuses on designing, developing, testing, producing, and fielding an optimized training system for KC-46 maintainers by integrating various forms of training media and Maintenance Training Devices (MTDs) into a "blended" solution. This blended solution includes the appropriate mix of hardware and software, "high-fidelity" Augmented Hardware Training Devices (AHTDs), PTTs, Interactive Multimedia Instruction (IMI), and emerging technologies to meet validated Air Mobility Command (AMC) maintenance training requirements.

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B. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: KC-46 Aircraft Product Development				26.012	15.600	14.838	-	14.838
Description: EMD activities will be conducted to include the following types of activities: develop a commercial 767-2C aircraft upon which the KC-46 is based; develop the KC-46 military capability and integrate it into the aircraft; build four EMD aircraft; procure live fire assets; procure required Government Furnished Equipment (GFE); procure simulator and maintenance data; develop technical manuals and Type 1 training; and conduct development and operational testing.								
FY 2019 Plans: Continue product refinement, studies, ground, and flight testing in support of the KC-46 weapon system to include receiver certifications, Wing Aerial Refueling Pod qualification/certification, simulator data collection, and entrance into Initial Operational Test and Evaluation (IOT&E). Conduct Acquisition Strategy Panel (ASP), release Request For Proposal (RFP), and contract award to execute Engineering Change Proposal to address KC-46 boom telescope stiffness Category 1 Deficiency Report (DR). Remote Vision System (RVS) Other Government Costs (OGCs) for Boeing developed solution for Category 1 DR.								
FY 2020 Base Plans: Continue product refinement, studies, ground, and flight testing in support of the KC-46 weapon system to include receiver certifications, simulator data collection, and completion of IOT&E events/reporting. Continue execution of boom telescope stiffness Engineering Change Proposal (ECP) and support other government costs associated with solution for Remote Vision System (RVS).								
FY 2019 to FY 2020 Increase/Decrease Statement: Funding decreased due to development activities ramping down.								
Title: KC-46 Trainer Product Development - Aircrew Training System (ATS)				0.038	0.000	0.000	0.000	0.000
Description: Trainer development activities will be conducted to include the following types of activities: development and procurement of ATDs, courseware, and associated support equipment.								
FY 2019 Plans:								

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
No FY19 funding is required for the Aircrew Training System effort. <b>FY 2020 Base Plans:</b> No FY19 and FY20 funding required for the Aircrew Training System effort. <b>FY 2020 OCO Plans:</b> N/A <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> N/A						
<b>Title:</b> KC-46 Support <b>Description:</b> Development, integration, and demonstration of the KC-46 mission planning capability. In addition, studies and analysis to support planning activities for future efficiency initiatives, business case analyses, future tanker replacement planning, and miscellaneous Program Office support and planning. Also includes requirements such as travel, office supplies, training courses, and service contracts. <b>FY 2019 Plans:</b> Continue Program Office Support and Planning. <b>FY 2020 Base Plans:</b> Continue Program Office Support and Planning. <b>FY 2020 OCO Plans:</b> N/A <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decreased due to Program Office Support transition to Production.		31.748	5.608	2.078	0.000	2.078
<b>Title:</b> KC-46 Test & Evaluation <b>Description:</b> Test & Evaluation (T&E) activities will be conducted to include the following types of activities: Development Test & Evaluation, Operational Test & Evaluation, Tanker Qualification, Receiver Certifications, Live Fire Test & Evaluation (LFT&E), Federal Aviation Administration (FAA) support, and other test planning and organizational support. <b>FY 2019 Plans:</b> Continue T&E activities using EMD, pre-delivery production, and/or LRIP aircraft to support airworthiness certification,specification compliance, military utility evaluations, correction of deficiencies, and other T&E		17.800	45.459	28.777	0.000	28.777

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
activities for the KC-46. Complete preparations for IOT&E. Continue aerial refueling tanker receiver certification testing, Aerial Refueling Simulator Qualifications data collection and begin IOT&E.									
<b>FY 2020 Base Plans:</b> Continue using EMD, pre-delivery production, and/or LRIP aircraft to support AR tanker-receiver certification testing, Aerial Refueling Simulator Qualifications data collection, correction of deficiencies, and other T&E activities for the KC-46. Complete IOT&E events/reporting in support of the Full Rate Production decision.									
<b>FY 2020 OCO Plans:</b> N/A									
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decreased due to completion of T&E activities related to IOT&E.									
<b>Accomplishments/Planned Programs Subtotals</b>					75.598	66.667	45.693	0.000	45.693

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 02 Line Item KC046A: KC-46A Tanker	2,927.129	2,290.932	2,234.529	-	2,234.529	2,870.018	2,329.526	2,347.895	2,900.657	Continuing	Continuing
• APAF 06 Line Item 000999: Initial Spares	391.323	232.028	0.000	-	0.000	175.221	161.861	204.900	239.471	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The KC-46 Program acquisition strategy is to procure an existing commercial, FAA certified aircraft modified to meet USAF requirements. The KC-46 program released a final RFP on 24 Feb 2010, and entered source selection on 9 Jul 2010. The KC-46 program held a MS B DAB on 23 Feb 2011, received approval to enter EMD from the USD(AT&L) on 24 Feb 2011, and awarded the KC-46 contract to Boeing on 24 Feb 2011 to develop and procure 179 KC-46 aircraft. The KC-46 contract procurement was conducted via a full and open competition per Federal Acquisition Regulation (FAR) Part 15, and resulted in a FY 2011 EMD Fixed Price Incentive Firm (FPIF) contract. The EMD phase will develop, build, and test four KC-46 aircraft, and will qualify the KC-46 as a tanker and certify pairings with receiver aircraft.

The MS B acquisition strategy planned for two LRIP lots followed by 11 Full Rate Production (FRP) lots for a total aircraft procurement of 175 production aircraft. Updates to the acquisition strategy occurred in support of Milestone C (MS C) that increased LRIP from two to five lots and the remaining eight to be FRP lots with the total aircraft buy remaining at 175 Production aircraft (+4 EMD aircraft for a grand total of 179 aircraft).

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605221F / KC-46	<b>Project (Number/Name)</b> 655271 / KC-46 RDT&E
<p>LRIP began with two Firm Fixed Price (FFP) and two FFP Not to Exceed (NTE) options (LRIP-1 Qty 7, LRIP-2 Qty 12, LRIP-3 Qty 15, and LRIP-4 Qty 18). Lot 5 was approved for LRIP status and is planned for award in Jul 2019 [via a FFP NTE option] followed by eight (Lots 6-13) FFP FRP options [via NTE values + Economic Price Adjustment (EPA)]. LRIP Lots 1 and 2 were awarded on 18 Aug 2016, LRIP Lot 3 was awarded on 27 Jan 2017 and LRIP Lot 4 was awarded on 10 Sep 2018. The FRP options will be exercised following successful completion of IOT&amp;E.</p> <p>The ATS acquisition strategy is to provide ATDs, and associated support structure, to each MOB and the FTU. The ATS EMD FPIF contract with production options was conducted via a full and open competition per FAR Part 15, and awarded to FlightSafety Services Corporation in FY 2013. The ATS EMD phase will develop and procure ATDs; and will be supported with courseware, Training System Support Center, the technical data package, and support equipment to ensure system availability and concurrency with the aircraft. The first three ATS production options were exercised on 19 Aug 2015, 31 May 2017, and 30 Apr 2018.</p> <p>The MTS acquisition strategy is to acquire MTDs, and associated support structure, for two AMC active duty Regional Maintenance Training Facilities. The MTS EMD FFP contract with production options was conducted via a full and open competition per FAR Part 15, and awarded to The Boeing Company in FY 2016. The MTS EMD phase will develop and procure MTDs; and will be supported with courseware, Training System Support Center, the technical data package, and support equipment to ensure system availability and concurrency with the aircraft.</p> <p>The KC-46 Program is responsible for the development, testing, and production of a drogue-equipped, wing-mounted refueling system to meet Capability Production Document (CPD) thresholds and objectives for simultaneous refueling of two probe-equipped receivers. The system can be installed or removed from the KC-46 as mission needs dictate.</p> <p>The long-term support concept for the KC-46 is organic two-level maintenance (2LM): organization level (O-level) and depot level (D-level). For the purposes of this program, all maintenance other than O-level shall be referred to as D-level. The product support strategy will initially employ Interim Contractor Support (ICS) before transitioning to a 100% organically-managed maintenance and supply support capability. Performance Based Logistics (PBL) solutions will be evaluated during EMD as viable approaches to facilitate the transition.</p> <p><b><u>E. Performance Metrics</u></b></p> <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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Air Force</b>											<b>Date:</b> February 2019				
<b>Appropriation/Budget Activity</b> 3600 / 5						<b>R-1 Program Element (Number/Name)</b> PE 0605221F / KC-46					<b>Project (Number/Name)</b> 655271 / KC-46 RDT&E				

<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
KC-46A aircraft non-recurring development, integration, and testing; 4 RDT&E tanker aircraft; and support	C/FPIF	The Boeing Company : Seattle, WA	5,005.096	26.012	Apr 2019	15.600	Apr 2019	14.838	Apr 2020	-		14.838	51.095	5,112.641	6,069.817
KC-46A Aircrew Training System	C/FPIF	FlightSafety Services Corp. : Centennial, CO	86.856	0.038		0.000		0.000		-		0.000	0.332	87.226	87.499
KC-46A Maintenance Training System	C/FFP	The Boeing Company : St. Louis, MO	45.840	0.000		0.000		0.000		-		0.000	0.000	45.840	45.840
<b>Subtotal</b>			5,137.792	26.050		15.600		14.838		-		14.838	51.427	5,245.707	N/A

**Remarks**

The KC-46 EMD contract was awarded 24 Feb 2011. The contract ceiling price of \$4.9B is the government's maximum financial liability on the prime contract. The "Total Cost" value represents the MS C Service Cost Position (SCP), which accounts for the ceiling price of the contract plus the financial and schedule risk of potential design changes for the KC-46 aircraft.

FINANCIAL PERFORMANCE: The KC-46 is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, the KC-46 EMD contract is a FPIF contract with progress payments. Twenty percent of incurred costs are withheld until the end of the contract, when they are liquidated. Mandatory funding obligations and progress payment withholds will cause the program to lag traditional expenditure benchmarks, painting an inaccurate portrait of overall program health.

<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
KC-46A studies and analysis associated with the development, integration, and demonstration of KC-46 capability & future planning	C/CPAF	Various : Various	76.222	22.494	Mar 2019	1.167	Jul 2019	0.100	Jul 2020	-		0.100	0.000	99.983	99.983
<b>Subtotal</b>			76.222	22.494		1.167		0.100		-		0.100	0.000	99.983	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0605221F / KC-46				Project (Number/Name) 655271 / KC-46 RDT&E					
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
Remarks These contracts are on an as needed basis, with various contract types and performing activities.															
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
KC-46A testing and planning support of development & operational test, FAA & military certification, and aircraft qualification activities	Various	Various : Various	167.829	17.800	Dec 2018	45.459	Mar 2019	28.777	Mar 2020	-		28.777	8.029	267.894	267.894
Subtotal			167.829	17.800		45.459		28.777		-		28.777	8.029	267.894	N/A
Remarks Integrated testing and planning activities are performed by government organizations, with some contractor technical subject matter experts and teaming with the prime contractor.															
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
KC-46A Program Management Administration - Program A&AS Support	C/FFP	US Falcon : Dayton, OH	62.054	3.553	Mar 2019	1.433	Mar 2019	-		-		-	0.000	67.040	67.040
KC-46A Program Management Administration - Trainer A&AS Support	C/CPFF	HX5 : Fort Walton Beach, FL	11.520	0.000		0.000		0.000		-		0.000	0.000	11.520	11.520
KC-46A Program Management Administration - Other	Various	KC-46 Program Office : Dayton, W-P AFB, OH	38.598	5.701	Oct 2018	3.008	Oct 2019	1.978	Oct 2020	-		1.978	1.604	50.889	50.889



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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605221F / KC-46	<b>Project (Number/Name)</b> 655271 / KC-46 RDT&E
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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
<b>Subtotal</b>			112.172	9.254		4.441		1.978		-		1.978	1.604	129.449	N/A

**Remarks**  
One Advisory and Assistance (A&AS) contract in FY18 and FY19 over \$1M. Other PMA funding includes, but is not limited to, travel, supplies, and training.

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	5,494.015	75.598		66.667		45.693		-		45.693	61.060	5,743.033	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605221F / KC-46	<b>Project (Number/Name)</b> 655271 / KC-46 RDT&E
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	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
<b>KC-46</b>																												
EMD: KC-46 Aircraft																												
Takeoff and Landing Data (TOLD) Phase II																												
Developmental Test & Evaluation to support aircraft delivery																												
Receiver Certification																												
Initial Operational Test & Evaluation																												
Government Testing for Correction of Deficiencies																												
Boom Telescope Actuator ECP																												
Mission Planning Support																												
Depot Maintenance Inter-servicing (DMI), Source of Repair Assignment Process (SORAP), Activation Planning, & FAA Certifications																												
Aircrew Training System Development & Updates																												
Maintenance Training System Development & Updates																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605221F / KC-46	<b>Project (Number/Name)</b> 655271 / KC-46 RDT&E	

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b>KC-46</b>				
EMD: KC-46 Aircraft	1	2018	3	2021
Takeoff and Landing Data (TOLD) Phase II	4	2021	4	2024
Developmental Test & Evaluation to support aircraft delivery	1	2018	2	2019
Receiver Certification	1	2018	3	2020
Initial Operational Test & Evaluation	3	2019	4	2020
Government Testing for Correction of Deficiencies	1	2019	3	2021
Boom Telescope Actuator ECP	3	2019	3	2021
Mission Planning Support	1	2018	1	2020
Depot Maintenance Inter-servicing (DMI), Source of Repair Assignment Process (SORAP), Activation Planning, & FAA Certifications	1	2018	4	2019
Aircrew Training System Development & Updates	1	2018	4	2022
Maintenance Training System Development & Updates	1	2018	4	2019