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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	110.651	51.094	0.003	0.000	0.003	-	-	-	-	-	-
674596: <i>AOC WS Modifications</i>	-	110.651	51.094	0.003	0.000	0.003	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note
 In FY 2022, PE 0207410F, Air & Space Operations Center (AOC), Project 674596, AOC WS Modifications, was transferred to PE 0608410F, Air & Space Operations Center (AOC), Project 684596, AOC WS Modifications, in order to a participate in DoD's Budget Activity 08 for Software and Digital Technology Pilot Program.

In FY 2022, PE 0207410F, Air & Space Operations Center (AOC), Project 674596, AOC WS Modifications, platform efforts were transferred to PE 0303248F, All Domain Common Platform (ADCP), Project 675218, Applications Development, in order to support enterprise level hosting platform activities.

FY 2022: There is no plan to execute the remaining \$0.003M amount; this is residual funding resulting from inflation rate adjustments that will be fixed during future database cleanup actions.

A. Mission Description and Budget Item Justification

The Air Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS), is the weapon system that the Commander, Air Force Forces (COMAFFOR) provides the Combined/Joint Force Air Component Commander (C/JFACC) for planning, executing, and assessing theater-wide air and space operations. The C/JFACC provides air, space and cyber support to the Combined/Joint Forces Commander (C/JFC) by coordinating, deconflicting, and assessing the progress of various weapon systems to advance the C/JFC's campaign. The AOC WS develops operations strategy and planning documents. The weapon system also disseminates tasking orders; executes day-to-day peacetime and combat air, space and cyber operations; and provides rapid reaction to immediate situations by exercising positive control of friendly forces. This program is part of the overarching Kessel Run portfolio.

Funding supports continued software engineering capacity required for AOC WS Modifications to enable the transition from legacy systems (e.g., Theater Battle Management Core System - Force Level (TBMCS FL) and AOC 10.1) to Block 20 modernized applications while delivering, enabling and operating an extensible cloud-based Infrastructure and Platform as a Service (IaaS/PaaS) hosting platform. Additionally, the continued software engineering capacity delivers air operations capabilities improving speed and automation of the full air tasking cycle, including unit-level sortie generation capabilities that feed friendly order of battle information to the Master Air Attack Plan process. AOC WS Modifications are required for the AOC to keep pace with evolving COTS/GOTS components, DoD directives, changes in the underlying IT environment, and to remain interoperable, certified, supportable, and compliant through software engineering solutions, integration, testing, fielding, training, and sustainment of new capabilities and upgrades to the AOC WS. This includes utilization of managed cloud IaaS/PaaS hosting platform. Also, AOC WS Modifications activities evolve the AOC utilizing Agile Methodologies and embracing DevOps practices to deliver improved capabilities in support of mission requirements at Geographic and Global (formerly Functional) AOCs, as well as Support and Manpower Augmentation units, keeping the AOC current and interoperable with the Combatant Commands (CCMDs), cyber requirements, and next generation weapon systems/weapons.

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No FY 2022 funding requested; FY 2022 project efforts are detailed in PE 0303248F, ADCP, and PE 0608410F, AOC.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY20 \$9.910M was expended for civilian pay expenses in this program element, and in FY21 \$19.137M is forecasted for civilian pay expenses in this program element.

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	114.864	51.187	112.232	0.000	112.232
Current President's Budget	110.651	51.094	0.003	0.000	0.003
Total Adjustments	-4.213	-0.093	-112.229	0.000	-112.229
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-0.093			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.009	0.000			
• SBIR/STTR Transfer	-4.204	0.000			
• Other Adjustments	0.000	0.000	-112.229	0.000	-112.229

Change Summary Explanation

FY 2022: Funding decreased due to transfer to PE 0608410F, Air & Space Operations Center (AOC), in order to a participate in DoD's Budget Activity 8 for Software and Digital Technology Pilot Program.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: AOC WS Modifications Development	97.554	47.523	0.003	0.000	0.003
Description: Conduct AOC WS infrastructure software engineering solutions and mission capability software engineering solutions by leveraging agile engineering methodologies to engineer, integrate, and test modification updates to the AOC WS leveraging test-driven development. Utilize CI/CD processes to provide engineering solutions, test, and deliver effective operational C2 capabilities including enhanced C2 capabilities to support multi-domain operations.					

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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>			
C. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>FY 2021 Plans: - Continue rapid fielding of software capabilities to enable the retirement of TBMCS FL and MAAPTK - Continue development and establishment of an enterprise infrastructure baseline to support hosting a virtual private cloud</p> <p>FY 2022 Base Plans: See PE 0303248F, ADCP, Project 675218, Applications Development, and PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.</p> <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased due to transfer to PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.</p>					
<p>Title: AOC WS Modifications Direct Mission Support</p> <p>Description: Plan and execute strategies to adopt commercial best practices for software development, scale out a modern IaaS/PaaS solution to the AOC WS enterprise, implement improved solutions for platform architecture and CI/CD pipeline, and maintain continuous Authority to Operate (ATO).</p> <p>FY 2021 Plans: - Provide the competencies necessary to scale software development capacity and enable retirement of TBMCS FL - Continue to enable development and establishment of extensible cloud-based IaaS/PaaS hosting platform/ enterprise architecture baseline environment</p> <p>FY 2022 Base Plans: See PE 0303248F, ADCP, Project 675218, Applications Development, and PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.</p> <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased due to transfer to PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.</p>	13.097	3.571	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	110.651	51.094	0.003	0.000	0.003

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 834520: <i>Theater Battle Mgt C2 System</i>	5.499	0.000	0.000	0.000	0.000	-	-	-	-	-	-
• OPAF 03 834530: <i>Air & Space Operations Center (AOC)</i>	33.243	15.383	2.224	0.000	2.224	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

The acquisition strategy builds on agile software engineering solutions and modification of existing capabilities using evolutionary acquisition to standardize and modify the AOC WS. The initial capability was AOC WS Increment 10.0, which fielded the 10.0 configuration to five operational sites, plus a Help Desk and a Formal Training Unit. The second increment, Increment 10.1, upgraded these locations to an integrated baseline and fielded the baseline to additional operational and reserve units worldwide. AOC WS Modifications will leverage commercial best practices of Agile DevOps to scale out a modern virtual private cloud to the AOCs and scale up additional software product teams in support of retiring TBMCS FL and other legacy mission critical applications allowing for eventual disposal of the AOC 10.1 infrastructure. This enables dynamic resource allocation based on current warfighter needs. AOC Modifications operates under authority of FY16 NDAA, Section 804, Middle Tier of Acquisition for Rapid Prototyping and Rapid Fielding, leveraging commercial best practices to reduce timelines by modularizing both the development work and the associated contracting and funding strategies. The program is transitioning to a Software Acquisition Pathway following DoDI 5000.87, Operation of Software Acquisition Pathway Guidance. The desired end state is continuous delivery of all AOC WS software.

AOC WS Modifications will leverage the AOC WS Long-Term Modification and Sustainment (LTM&S) contract which will provide support to government led integration of the AOC WS enterprise. AOC WS Modifications will also use Other Transaction Authority (OTA) to adopt commercial best practices for software development and to scale out a modern Infrastructure as a Service/Platform as a Service (IaaS/PaaS) solution. Activities are also accomplished via Military Interdepartmental Purchase Requests (MIPR). Additionally, significant technical expertise will be sought after via modular contracting approach and provided by Government Agencies, DoD Laboratory, Federally Funded Research and Development Centers (FFRDC), Academia, and Engineering & Professional Acquisition Support Services contractors as well as commercial industry partners.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0207410F / Air & Space Operations Center (AOC)				674596 / AOC WS Modifications								
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
AOC WS Modifications Development	C/Various	Various : Multiple	-	56.931	Dec 2019	22.595	Dec 2020	0.003	Dec 2021	0.000		0.003	-	-	-	
AOC WS Modifications Other Transaction	Various	Pivotal : Multiple	-	16.509	Dec 2019	1.985	Dec 2020	0.000		0.000		0.000	-	-	-	
Subtotal			-	73.440		24.580		0.003		0.000		0.003	-	-	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
AOC WS Modifications Direct Mission Support	C/Various	Various : Various	-	13.097	Oct 2019	3.571	Dec 2020	0.000		0.000		0.000	-	-	-	
AOC WS Modifications Civilian Direct Cite Authorizations for Product Development	Allot	AFLCMC/FZA : TBD	-	9.910	Oct 2019	19.137	Oct 2020	0.000		0.000		0.000	-	-	-	
Subtotal			-	23.007		22.708		0.000		0.000		0.000	-	-	N/A	
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
AOC WS Modifications Engineering Services	Various	Various : Various	-	5.454	Oct 2019	2.432	Dec 2020	0.000		0.000		0.000	-	-	-	
AOC WS Modifications Program Support	C/Various	Various : Various	-	8.750	Nov 2019	1.374	Dec 2020	0.000		0.000		0.000	-	-	-	
Subtotal			-	14.204		3.806		0.000		0.000		0.000	-	-	N/A	
Project Cost Totals			-	110.651		51.094		0.003		0.000		0.003	-	-	N/A	

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Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)			Project (Number/Name) 674596 / AOC WS Modifications				
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
 AOC funding transferred to PE 0608410F, Air & Space Operations Center (AOC), Project 684596, AOC WS Modifications.

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications

FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
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

AOC WS Modifications	
AOC WS Modifications Kessel Run	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AOC WS Modifications				
AOC WS Modifications Kessel Run	1	2020	4	2021

Note

See PE 0303248F, All Domain Common Platform (ADCP), Project 675218, Applications Development, and PE 0608410F, Air & Space Operations Center (AOC), Project Number 684596, AOC WS Modifications for continued development events.