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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604288F / <i>Survivable Airborne Operations Center</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	-	12.205	59.390	133.253	0.000	133.253	-	-	-	-	-	-
646507: <i>Survivable Airborne Operations Center (SAOC)</i>	-	12.205	59.390	133.253	0.000	133.253	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

In FY2018, PE 0302015F, E-4B National Airborne Operations Center (NAOC) Project 674777, E-4B Aircraft Modernization efforts were transferred to PE 0604288F, National Airborne Ops Center (NAOC) Recap, Project 646507, NAOC Recap Development, in order to provide greater transparency and consolidate efforts. NAOC Recap Development funding in FY18 was \$6.14M and FY19 was \$7.17M.

A. Mission Description and Budget Item Justification

The Survivable Airborne Operations Center (SAOC), formerly known as the E-4B National Airborne Operations Center (NAOC) Recapitalization effort, will replace the aging E-4B fleet which faces capability gaps, diminishing manufacturing sources, increased maintenance costs, and parts obsolescence as it approaches the end of its serviceable life. The recapitalization effort will be informed by Air Force and Department of Defense analyses used to determine a holistic approach to replacing the aging E-4B fleet and capabilities of other nuclear and national command and control mission sets.

SAOC will be a survivable node of the National Military Command System (NMCS), providing POTUS, SECDEF and the CJCS a worldwide, survivable, and enduring node of the NMCS to fulfill national security requirements throughout all stages of conflict. As a command, control and communications center directing US forces, executing emergency war orders and coordinating the activities of civil authorities including national contingency plans, this capability ensures continuity of operations plans and continuity of government as required in a national emergency or after negation/destruction of ground command and control centers.

SAOC will fulfill the requirements of the AF Nuclear Mission by providing Nuclear Command, Control and Communications (NC3) capabilities to execute Nuclear Command and Control (NC2) Concept of Operations (CONOPS) that enable the exercise of authority and direction by the President to command and control US military nuclear weapon operations.

The SAOC baseline operational missions also include Secretary of Defense Global Command and Control (SDGC2), enabling the SecDef to execute command and control responsibilities around the globe, as well as support to Defense Support of Civil Authority (DSCA) providing DoD support to civilian agencies to support emergencies or disasters relief efforts when requested by the Department of Homeland Security and approved by the SecDef or Chairman contingent on platform availability.

In FY2019, OSD CAPE initiated a joint service Analysis of Alternatives (AoA) to assess mission sets and platforms across E-4B (NAOC), C-32A (Executive Airlift), and the Navy's E-6B (ABNCP/TACAMO), known as the "NEAT" AoA. The NEAT AoA is complete and OSD CAPE approved and signed the Sufficiency Review on 30 Nov 2020.

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Furthermore, program funds include funding for emerging requirements to support program office operations, management services (Federally Funded Research and Development Services [FFRDC], Advisory and Assistance Services [A&AS], etc.), Program Management Support (PMS), security, prototyping, equipment and other efforts as required to stand up a program office. Finally, it includes all activities required to award and execute design and prototyping contracts to either a single or multiple vendors; to include provisioning for follow on efforts, such as life-of-type buys and long lead materials for following activities and options.

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 \$0M was expended for civilian pay expenses in this program element, and in FY21 \$0.016M is forecasted for civilian pay expenses in this program element.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	12.669	76.417	136.477	0.000	136.477
Current President's Budget	12.205	59.390	133.253	0.000	133.253
Total Adjustments	-0.464	-17.027	-3.224	0.000	-3.224
• Congressional General Reductions	0.000	-0.108			
• Congressional Directed Reductions	0.000	-16.919			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.464	0.000			
• Other Adjustments	0.000	0.000	-3.224	0.000	-3.224

Change Summary Explanation

FY2021 adjustments include Congressional mark for Management services unjustified growth -2,635; Acquisition strategy -14,284 and Undistributed Reduction - Excess to Need -108

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: SAOC	12.205	59.390	133.253
Description: The SAOC weapon system will be comprised of a Commercial Derivative Aircraft (CDA), mission system, and ground support systems. The CDA will be hardened to protect against nuclear and electromagnetic effects and modified with an aerial refueling capability to enable sustained airborne operations. The mission system will integrate secure communications and			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>planning capabilities on modern information technology (IT) infrastructure using a modular open system architecture. The ground systems include aircrew and maintenance training systems, ground support equipment, mission system laboratories, and other ground systems to enable the operations, sustainment, and future modifications of the SAOC weapon system across the lifecycle.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> -Complete the NEAT AoA and continue to support Air Force Global Strike Command (AFGSC) with Capability Development Document (CDD) generation and joint approval. -Continue development of the System Requirements Document (SRD). -Conduct industry-supported market research in support of acquisition strategy finalization, development of request for proposals (RFP), and support documentation development for milestone decisions. -Conduct planning, prototyping, and acquisition activities with industry that are required for integration of NC3 systems, directed systems, communications systems, Advanced Battle Management System (ABMS), and mission system laboratories. -Support development of needed next generation capabilities and/or modernization of existing systems toward enterprise interfaces, open standards, and platform agnostic architectures. -Accelerate readiness for SAOC system development by conducting used aircraft research and analysis, identification and capture of aircraft, digital modeling and engineering analysis, and establishment of a digital engineering framework. -Conduct activities to integrate Modular Open Systems Architecture throughout the SAOC program and support the development and transition to open system architecture for required legacy systems and future capabilities. -Continue the program office manning growth-path required to support the execution of a future Major Defense Acquisition Program (MDAP). <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> -Complete development of the System Requirements Document (SRD). -Continue industry-supported market research to support development Request for Proposal (RFP) release and documentation development for milestone decisions. -Expand planning, prototyping, and acquisition activities with industry that are required for integration of or in support of NC3 systems, directed systems, communications systems, Advanced Battle Management System (ABMS), mission system laboratories, or other EMD assets/hardware. -Support development of needed next generation capabilities and/or modernization of existing systems toward enterprise interfaces, open standards, and platform agnostic architectures. -Conduct mitigation activities for diminishing manufacturing issues, impacting mission systems to avoid upgrade/redesign expense. -Continue activity for used aircraft research and analysis, identification and capture of aircraft, digital modeling, and establishment of a digital engineering framework. 				

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<ul style="list-style-type: none"> -Investigate and inspect candidate test articles. -Continue to integrate Modular Open Systems Architecture throughout the SAOC program and support the development and transition to open system architecture for required legacy systems and future capabilities. -Continue the program office manning growth-path required to support the SAOC system development. <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></p> <ul style="list-style-type: none"> -The FY22 increase from FY21 is required to accelerate Pre-EMD activities needed to prepare for and position the program for Milestone B and EMD execution in early FY23. -Funding supports expansion of integrated digital environments, model-based systems engineering efforts with industry, and further FY21 contracted activities to improve lead times, minimize risk, and/or enhance interoperability. -Increased funds expand support to emerging subsystem capability development and support modernization and acquisition of existing systems needed for integration into SAOC's mission system. -Finally, funding increase is required for additional civilian pay expenses in support of stand-up of the program office. 			
Accomplishments/Planned Programs Subtotals	12.205	59.390	133.253

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

N/A

Remarks

E. Acquisition Strategy

Based on NEAT AoA findings and CDD required capabilities, the SAOC program is pursuing an accelerated market research phase to update the 2020 acquisition strategy and rapidly pursue system development. The program is striving to maintain a full and open competitive acquisition and maximize competition across the entire weapon system lifecycle. In parallel, the program is supporting AFGSC as they complete the requirements validation process.

OSD formally designated the SAOC program an ACAT ID on 30 Aug 20. Through multiple engagements with the Milestone Decision Authority, the program is targeting finalization of the acquisition strategy in FY21 to enter the acquisition lifecycle at Milestone B with Request for Proposal release targeted for early FY22.

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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 / 4				PE 0604288F / Survivable Airborne Operations Center				646507 / Survivable Airborne Operations Center (SAOC)							
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
Pre-EMD Contract Activities/Studies	C/Various	TBD : TBD	-	-		30.740	Apr 2021	91.541	Apr 2022	-		91.541	-	-	-
Subtotal			-	-	30.740		91.541		-		91.541	-	-	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
Direct Mission Support	C/Various	Various : Bedford, MA : TBD	-	0.971	Feb 2020	11.328	Oct 2020	4.522	Oct 2021	-		4.522	-	-	-
Subtotal			-	0.971		11.328		4.522		-		4.522	-	-	N/A
Test and Evaluation (\$ 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
Test and Evaluation	C/CPIF	Not specified. : TBD	-	-		0.000		3.745	Oct 2021	-		3.745	-	-	-
Subtotal			-	-	0.000		3.745		-		3.745	-	-	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
FFRDC	SS/CPFF	Various : Bedford, MA : Hanscom AFB, MA	-	6.932	Oct 2019	6.295	Oct 2020	15.170	Oct 2021	-		15.170	-	-	-
EPASS (A&AS)	C/CPFF	Various : Bedford, MA : Hanscom AFB, MA	-	2.869	Jul 2020	7.093	Jul 2021	10.052	Jul 2022	-		10.052	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604288F / <i>Survivable Airborne Operations Center</i>	Project (Number/Name) 646507 / <i>Survivable Airborne Operations Center (SAOC)</i>
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Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
PMA - Other	Various	Various : Bedford, MA : Hanscom AFB, MA	-	1.433	Oct 2019	3.934	Oct 2020	8.223	Oct 2021	-		8.223	-	-	-
Subtotal			-	11.234		17.322		33.445		-		33.445	-	-	N/A
Project Cost Totals			-	12.205		59.390		133.253		-		133.253	-	-	N/A

Remarks

Product Development:
 -Increase in FY22 Pre-EMD Contract Activities and Studies from FY21 accelerates pre-EMD activities by investing in necessary product development to prepare program for Milestone B and EMD execution in early FY23.

Support:
 -Increase in FY21 Direct Mission Support investment from FY20 establishes required digital engineering tools and secure facilities for implementation of the program.
 -FY22 Direct Mission Support continues implementation of digital engineering tool infrastructure and efforts.

Management Services:
 -Increase in FY22 FFRDC and EPASS (A&AS) is required to accelerate pre-EMD activities and prepare the program for Milestone B and EMD execution in early FY23.

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Survivable Airborne Operations Center Development</i>				
Analysis of Alternatives	1	2020	1	2021
Acquisition Strategy Development	1	2020	4	2021
Pre-EMD Contract Activities, Studies & Prototyping	3	2020	2	2023
Milestone B	1	2023	2	2023
EMD	2	2023	4	2026