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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 0101316F / <i>Worldwide Joint Strategic Communications</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	-	25.312	31.166	15.202	0.000	15.202	-	-	-	-	-	-
671820: <i>Strategic Automated Command and Control System</i>	-	25.312	31.166	15.202	0.000	15.202	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Worldwide Joint Strategic Communication efforts include Nuclear Command, Control, and Communications (NC3) systems to include the Defense Injection Reception Emergency Action Message (EAM) C2 Terminals (DIRECT), Aircrew Alerting Communications Electromagnetic Pulse (AACE), the Strategic Emergency Action Transmission System (SEATS), the Defense Red Switch Network (DRSN), and the Strategic Automated Command and Control System (SACCS). Funding may be used to modernize these, and other, NC3 systems. Funding may also be used for research, testing, validation, certification, configuration management, and assessment of the Air Force NC3 Weapon System.

SACCS is a dedicated, high speed, multi-level secure, data transmission, processing, and display system. SACCS provides the primary non-survivable command and control capability for receiving and disseminating secure Emergency Action Messages (EAM), Force Direction Messages (FDM), Force Status Reporting (FSR), and exchanging information type messages from USSTRATCOM. SACCS provides messages for effective deployment of strategic bombers, reconnaissance aircraft, mobilization aircraft, tanker support aircraft, and the Intercontinental Ballistic Missile (ICBM) force.

SACCS has equipment that has reached its end of life and is no longer repairable due to diminished manufacturing sources and parts obsolescence. This jeopardizes Air Force Global Strike Command's (AFGSC) ability to meet mission requirements as required by Chairman Joint Chief of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01). In order to mitigate the risk of SACCS inability to operate once the current spares are completely diminished, and ensure the system remains secure against modern/future threats, the Air Force is developing a replacement system (SACCS-R).

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 elements 0605831F and 0605833F. In FY2020 \$0.294M and in FY2021 \$0.564M was expended 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.

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	26.177	27.235	15.430	0.000	15.430
Current President's Budget	25.312	31.166	15.202	0.000	15.202
Total Adjustments	-0.865	3.931	-0.228	0.000	-0.228
• Congressional General Reductions	0.000	-0.057			
• Congressional Directed Reductions	0.000	-4.012			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	8.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.865	0.000			
• Other Adjustments	0.000	0.000	-0.228	0.000	-0.228

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 671820: Strategic Automated Command and Control System

Congressional Add: NC3 Architecture

	FY 2020	FY 2021
Congressional Add Subtotals for Project: 671820	7.736	8.000
Congressional Add Totals for all Projects	7.736	8.000

Change Summary Explanation

FY2021 Congressional Add 8.0M NC3 Architecture
 FY2021 SACCS-R Congressional Reduction -4.012M

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2020	FY 2021	FY 2022
Title: SACCS Replacement	17.576	23.166	15.202
Description: Design and develop replacement Strategic Automated Command Control System (SACCS-R). Transition architecture from Time Division Multiplexing to Internet Protocol (TDM-IP). Replace legacy components with supportable networking and information system hardware. The new system will mitigate cybersecurity risks, improves Mean Time Between Failure rates, reliability, availability, improves user interface, decreases annual sustainment costs, addresses Diminishing Manufacturing Sources and Material Shortages and obsolescence challenges, and meets Chairman Joint Chiefs of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01).			
FY 2021 Plans:			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<ul style="list-style-type: none"> - Continue Technology Maturation and Risk Reduction efforts to include a temporary modification to address near term obsolescence issues - Continue transition of TDM circuits to IP circuits through DISA process for establishing new circuits. Order circuits through DISA storefront - Complete last mile installation of new circuits from DISA point of presence to the SACCS terminal - Conduct site modification of SACCS desktop terminals to implement the IP transition - Conduct test readiness review (TRR) and testing on the temporary modification and transition existing SACCS desktop and portable terminals to an IP network - Continue development of Network Operations Center/Security Operations Center (NOC/SOC) and initiate testing of TDM-IP systems with the NOC/SOC - Continue development of the system solution to address the multi-level security requirement (Cross Domain Solution - CDS) - Initiate development of modifications to the Higher Authority Communications/Rapid Message Processing Element (HAC/RMPE), and the Launch Control Center (LCC) end user terminal to support SACCS-R implementation - Start design of updated NMHS interface changes - Start design of Black IP Transport (Storm Cloud) for implementation in SACCS - Initiate preliminary design for the modifications to the Missile Procedure Trainer (MPT) to support SACCS-R implementation at the LCCs - Initiate purchases of development hardware to support replacement of obsolescent equipment at the SACCS Operation Center - Initiate software development effort for modernization of SACCS terminals and SACCS Operations Center - Develop, Design, and Purchase new Port Expansion Processors (PEP) to support TDM-IP effort <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Continue Technology Maturation and Risk Reduction efforts to include a temporary modification to address near term obsolescence issues - Continue transition of TDM circuits to IP circuits through DISA process for establishing new circuits. Order circuits through DISA storefront - Complete last mile installation of new circuits from DISA point of presence to the SACCS terminal - Continue site modification of SACCS desktop terminals to implement the IP transition - Continue development of NOC/SOC and initiate TRR and continue testing of TDM-IP systems with the NOC/SOC - Conduct the initial fielding of the NOC/SOC - Continue development of the system solution to address the multi-level security requirement (Cross Domain Solution - CDS) - Continue development of modifications to the HAC/RMPE, and the Launch Control Center (LCC) end user terminal to support SACCS-R implementation - Continue design of updated Navy Modernized Hybrid Solution (NMHS) interface changes 				

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<ul style="list-style-type: none"> - Continue design of Black IP Transport (Storm Cloud) for implementation in SACCS - Continue preliminary design for the modifications to the Missile Procedure Trainer (MPT) to support SACCS-R implementation at the LCCs - Continue purchases of development hardware to support replacement of obsolescent equipment at the SACCS Operation Center - Continue software development effort for modernization of SACCS terminals and SACCS Operations Center - Continue the purchase new Port Expansion Processors (PEP) to support TDM-IP effort - Integrate and test new PEP into the SACCS <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decrease due to leveling efforts to implement/test temporary modification to support interim TDM-IP transition/OMNI Crypto replacement.</p>				
Accomplishments/Planned Programs Subtotals		17.576	23.166	15.202
		FY 2020	FY 2021	
Congressional Add: NC3 Architecture		7.736	8.000	
<p>FY 2020 Accomplishments: - Provided AFGSC innovation and analysis capability through Modeling and Simulation activities, Airman development, leadership development, and Concept for Force Development activities</p> <ul style="list-style-type: none"> - Provided analysis capability to fund access to FFRDCs and UARCs for AFGSC Decision Support - Continued development of NC3 200/300 courseware for Airman - Standing up StrikeWERX node (innovation center) at the Cyber Innovation Facility (CIC) complex <p>FY 2021 Plans: - Provided AFGSC innovation and analysis capability through Modeling and Simulation activities, Airman development, leadership development, and Concept for Force Development activities</p> <ul style="list-style-type: none"> - Provided analysis capability to fund access to FFRDCs and UARCs for AFGSC Decision Support - Continued development of NC3 200/300 courseware for Airman - Funding StrikeWERX node (innovation center) at the Cyber Innovation Facility (CIC) complex 				
Congressional Adds Subtotals		7.736	8.000	

UNCLASSIFIED

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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 PE 0101316F: <i>Strategic Command and Control (833140)</i>	0.300	24.520	29.539	-	29.539	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

Programmed funds continue to support TMRR efforts including a temporary modification to address near-term obsolescence issues (TDM-IP). The program is using a task order under the ICBM Ground Subsystems Support Contract and organic support from the 595 SCS and the 309 SWEG to conduct TMRR efforts.

UNCLASSIFIED

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 0101316F / Worldwide Joint Strategic Communications					671820 / Strategic Automated Command and Control System						
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
SACCS-R TMRR	SS/CPFF	Northrop Grumman : Layton, UT	-	13.158	Nov 2019	17.435	Nov 2020	11.433	Nov 2021	-		11.433	-	-	-
Subtotal			-	13.158		17.435		11.433		-		11.433	-	-	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
SACCS-R Engineering Development	Various	Various : Various	-	0.434	Nov 2019	1.637	Nov 2020	1.000	Nov 2021	-		1.000	-	-	-
NC3 Architecture Development	Various	Various : Various	-	7.736		8.000		-		-		-	-	-	-
Subtotal			-	8.170		9.637		1.000		-		1.000	-	-	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
SACCS-R Development Test & Evaluation	Various	Various : Various	-	1.378	Nov 2019	0.760	Nov 2020	0.271	Dec 2021	-		0.271	-	-	-
Subtotal			-	1.378		0.760		0.271		-		0.271	-	-	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
SACCS-R Program Management Administration	Various	Various : Various	-	1.291	Jan 2020	1.608	Jan 2021	1.259	Nov 2021	-		1.259	-	-	-
SACCS-R Integration Support	C/FFP	BAE Systems, Inc. : Hill AFB, UT	-	1.315	Jan 2020	1.726	Jan 2021	1.239	Nov 2021	-		1.239	-	-	-

UNCLASSIFIED

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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			
Subtotal			-	2.606		3.334		2.498		-		2.498	-	-	N/A

Remarks
 Costs and services in support of program office management and administration processes such as: program oversight, resource justification, budget and programming, milestone and scheduling--PMA costs.

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	25.312	31.166	15.202	-	15.202	-	-	N/A

Remarks

UNCLASSIFIED

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>Strategic Automated Command and Control System</i>				
SACCS-R Technology Maturation/Risk Reduction	1	2020	3	2023
SACCS-R TDM-IP 1.1	1	2020	1	2022
SACCS-R TDM-IP 1.1 Decision to Retain	1	2022	1	2022
SACCS-R TDM-IP 1.2	1	2021	3	2023
SACCS-R TDM-IP 1.2 Decision to Retain	3	2023	3	2023
SACCS-R PDR	3	2023	3	2023
SACCS-R Milestone B	3	2023	3	2023
SACCS-R Engineering and Manufacturing Development	4	2023	4	2026
SACCS-R ARES 2.0	4	2023	4	2026
SACCS-R CDR	3	2024	3	2024